
IN THE

District Court of the United States

FOR THE

NORTHERN DISTRICT OF CALIFORNIA

SECOND DIVISION

SPRING VALLEY WATER COMPANY,

Complainant,

vs.

CITY AND COUNTY OF SAN FRAN-
CISCO, et al.,

Defendants.

Nos. 14,735, 14,892,
15,131, 15,344, 15,569,
26, 96, in Equity.

ORAL ARGUMENT OF ROBERT M. SEARLS
FOR DEFENDANTS

on final hearing before Hon. H. M. Wright, Standing Master in
Chancery for said Court.

Solicitors for Defendants

PERCY V. LONG,
City Attorney,

ROBERT M. SEARLS,
Asst. City Attorney.

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—
AUGUST 24th-SEPTEMBER 1st, 1916.
—

Solicitors for Defendants

{ PERCY V. LONG,
City Attorney,
ROBERT M. SEARLS,
Asst. City Attorney.

X-629

WATER CO.

1914.

PURCHASE BY CITY

option

PURCHASE BY CITY OR RATING BASE

ON RATING BASE

4 6 8

MILES

FROM

1914

GOV. 1902
ST. LOUIS
CENT. DIST.

Right to
disfranchise was
to be secured by
city.

AREA

ALABAMA

MISSISSIPPI

MISSION SAN JO

LEGEND

NOT INCLUDED IN PROPOSED PURCHASE BY CITY OR RATING BASE

2 1 0 2 4 6

SCALE OF MILES

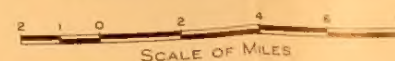


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CITY AND COUNTY OF SAN FRANCISCO, et al.

Thursday, August 24, 1916.

**ARGUMENT OF ROBERT M. SEARLS, ESQ., IN BEHALF
OF DEFENDANTS.**

Prefatory Acknowledgment:

MR. SEARLS—At the opening of the argument of the last cases before Judge Farrington, counsel for both sides took occasion to acknowledge at the outset their obligations to those who had assisted them in the preparation of their arguments. I think it altogether proper at this time for me to preface my remarks with a statement in the record of my obligation to those who made it possible for me to try singlehanded this long case; I refer particularly to Mr. N. Randall Ellis, Chief of the Valuation Department of the city, and his assistants, Messrs. J. M. and J. G. Bailhache and Wallace Borough. These men, engineers and accountant, have given me unsparingly of their time both day and night, and were actuated in so doing by the highest motives of professional interest in this work. I feel I am doing very little in extending here in the record my personal and official acknowledgment of their exceedingly efficient assistance, without which I do not know what I could have done. I am also indebted to Mr. Frank J. Blake of the San Francisco bar for assistance in briefing cases for this argument.

I. INTRODUCTION—DEFENDANT'S POINT OF VIEW.

The case at bar has been before your Honor for a little over a year. We have consumed over 150 days of time in actual trial, the testimony is embodied in a record of over 11,000 pages; the scope and complexity of the subjects covered has, as your Honor knows, been very great. The issues, that is, the main issues, are, on the other hand, very simple, and in working out this case for argument with a view to aiding your Honor in determining these main issues, it has seemed particularly necessary to me to develop at the outset a point of view and to place that point of view before your Honor in terms as simple and as forceful as I may command, to the end that in the complexity of the details of which I must treat in this argument I may have something to tie to—something to which I can direct the Court's attention as being a guide and also the explanation of many points which I shall make. This has become all the more necessary because counsel has accused the defendant in this case of rank inconsistency in both word and action.

1. Extent of Court's Jurisdiction.

The point of view which I desire to emphasize at the outset and shall have frequent occasion to refer to in the many ramifications of the argument goes primarily to the jurisdiction of this Court. It goes to the fundamental authority by virtue of which complainant is entitled to come here and complain and argue for an injunction against rates fixed by the lawfully constituted governmental authority. In brief, my first assumption is this: that this Court is a court of original jurisdiction and not a court of review; that it is sitting solely to determine whether certain rates fixed by the lawfully constituted authority, to wit, the Board of Supervisors of the City and County of San Francisco, as the legal maximum rates to be charged by the complainant during the years from July 1, 1907, to June 30, 1915, inclusive, yielded to complainant such a net revenue as to comply with the guarantees of the federal constitution against depriving complainant of its property without due process

of law, or abridging complainant's privileges or immunities, or denying to complainant the equal protection of the laws. Much time has been spent in previous cases in argument as to the jurisdiction of this Court to hear complainant's case even under these provisions of the constitution; but an examination of the authorities satisfies me that the jurisdiction of the Court for this purpose is well established. But I make a clear distinction between the jurisdiction taken by reason of these constitutional guarantees and a jurisdiction which would give the Court a right to review the steps and proceedings and acts of the administrative body which has fixed these rates. This jurisdiction has neither by law nor judicial interpretation been conferred upon a federal court; nor do I think that a federal court of equity having once assumed jurisdiction of the constitutional questions involved should in the exercise of that jurisdiction attempt to stretch it into a proceeding of review. So, in presenting this argument to your Honor in defendant's behalf it is solely the effect of the acts of the rate-making body which I have attempted to examine, and the evidence has been presented as to a court of original jurisdiction, not as to a court of review; the steps which the administrative body took in reaching its ultimate results have been ignored. To this end an appraisal of complainant's property has been made without reference to any appraisal which the rate-fixing body may have used. A list of properties in and out of use has been compiled without reference to any list which the rate-fixing body may or may not have used. The gross revenue, operating expenses, taxes, reserves, and net revenue have been determined without reference to any figures which the Board of Supervisors may have adopted in its investigation. And a rate of return has been contended for which may or may not be that rate which the Board of Supervisors intended to allow complainant in fixing these rates.

Again, in presenting the case to your Honor we have purposely ignored many features which should undoubtedly have great consideration from an administrative body but which I have felt could under no interpretation of the constitutional guarantees to which I have referred be proper evidence for your Honor's consideration.

These questions were primarily questions of policy—the question of whether it is a better policy for an administrative body to allow a public utility liberal rates permitting the company to earn large profits, inviting large additions to its plant and extensive investments for future use, or whether it is a better policy, in view of the fact that the water rates in the City of San Francisco are admittedly twice as high as those charged in any other great city of this country, to fix a minimum rate yielding a minimum fair rate of return to complainant on that portion of its existing plant which is actually in use, making its investment much less attractive and possibly forcing the company to wait until the market for its product is such as to absorb immediately all the water which it could bring in under additional units of development before undertaking that development. The adoption of either extreme in policy will, of course, have its effect on either the consumer or the company. If the water rates are too high they discourage investment in the community, discourage industry, discourage shipping, make fire protection more expensive, and add materially to the individual cost of living. If the rates are too low, even though they be within the constitutional limit, such policy is bound to reflect in the selling price of the company's securities, the attractiveness of its investment, the rates which it will have to pay for new money; and this, of course, will again react upon the community in the form of insufficient water supply and extension of distribution facilities for its growing population. Or, again, the administrative body may have adopted a policy which would be a mean between the two I have just outlined, giving the company rates just high enough to enable it to earn a rate of return on the reasonable value portion of its investment which is used and useful, high enough to enable it to get new money at that rate, but low enough to discourage extensive purchases of real estate for distant future use unless the company should be willing to buy with the expectation of realizing increment in land value in due time. I make no attempt here to say which, if any, of these policies has been followed by the Board of Supervisors. I merely call your Honor's attention to the fact that there may be a wide field within which questions of policy may operate to the advantage

or detriment of either the utility or the consumer without transcending the limits which the constitution fixes. It is my serious contention that over these questions of policy or the effects of the adoption of such policy within the limits I have outlined, your Honor has no jurisdiction, and consequently all evidence on those questions is incompetent and immaterial. I feel, after listening to counsel's argument, that he has not limited either his evidence or his contentions to the field of constitutionality but has rather sought to urge your Honor, having once assumed jurisdiction of this case, to take a wider scope in your inquiry than the legal extent of your jurisdiction warrants. In other words, he has sought to have your Honor determine questions of policy in addition to the questions of constitutionality. It is this thought which I would ask your Honor to have particularly in mind in considering the case before you, because I believe that the decision of this case will in a large measure depend upon the extent to which your Honor feels these questions are within your jurisdiction. Furthermore, I do not feel that the record in the case, voluminous as it is, contains facts sufficient to enable your Honor to intelligently go outside of the scope of constitutional inquiry and determine a question of policy. You cannot determine what lines of reasoning the city authorities followed from the record in this case. Scattered allusions to the inclusion of this or that tract of real estate mean nothing unless you know the entire method of valuation. Take, for instance, the Lake Merced properties: counsel has suggested repeatedly in his argument that the city authorities included year after year the entire Merced Rancho in their valuation for rate-fixing purposes. He does not, however, suggest the figure at which that rancho was included, and unless your Honor knows that figure and knows the total value for water supply purposes which the rate-fixing bodies placed upon that rancho you are not in a position to review their action even if you had the jurisdiction. It may well be that the total value which they placed on those lands—and I don't know this to be a fact—is as great as the total value which we have placed on the portion of the lands which we consider in use. Whether or not that is the fact it is my contention that it is not within your Honor's jurisdiction to de-

termine and you should not take into consideration in any event the fact alone that this land may have been included at some figure in past valuations.

These questions could not in their very nature be intelligently reviewed without calling the rate-makers themselves and going extensively into the motive which may or may not have influenced their action in certain instances, in learning just how they arrived at their results and just what their object was in adopting this or that policy. For instance, counsel has argued at some length that the Board of Supervisors have consistently adopted a policy of fixing rates so low as to prevent them making needed extensions. I suppose eleven out of twelve of these supervisors, if called, would testify that the company should make its extensions first and that they would allow a return on them when made. But that question is a question of policy with which I feel we have no concern in this proceeding. The community may suffer if the policy is carried to one extreme; the attractiveness of the company's investment may diminish seriously if carried to the other. So long as the rates yield a fair rate of return on the reasonable value of the property used and useful in supplying water to San Francisco, it is our contention that no judicial relief is available to the complainant. It is only when they can establish that the return under the rates falls below this minimum limit that equity, and especially federal equity, courts can step in with injunctive relief.

Citation of Cases:

At this point I desire to read to your Honor citations from a few cases which to my mind establish very thoroughly the amount of consideration the Court may give even after it has assumed jurisdiction:

It was said, in *San Diego Land Co. v. National City*, 174 U. S., 739, at page 753:

“* * But it should also be remembered that the judiciary ought not to interfere with the collection of rates established under legislative sanction unless they are so plainly and palpably unreasonable as to make their enforcement equivalent to

the taking of property for public use without such compensation as under all the circumstances is just both to the owner and to the public; that is, judicial interference should never occur unless the case presents, clearly and beyond all doubt, such a flagrant attack upon the rights of property, under the guise of regulations, as to compel the Court to say that the rates prescribed will necessarily have the effect to deny such compensation for private property taken for the public use."

In the same case, at page 759, the Court said:

"The only issue properly to be determined by a final decree in this cause is whether the ordinance in question fixing the rates for water supplied for use within the city, is to be stricken down as confiscatory by its necessary operation, and therefore in violation of the Constitution of the United States. If the ordinance, considered in itself, and applicable to water used within the city, is not open to any such objection, that disposes of the case, so far as any rights of the appellant may be affected by the action of the defendant."

And again, in *Reagan v. Farmers' Loan & Trust Co.*, 154 U. S., 362, at page 397, the Court said:

"The courts are not authorized to revise or change the body of rates imposed by a legislature or a commission; they do not determine whether one rate is preferable to another, or what under all the circumstances would be fair and reasonable as between the carrier and the shippers; they do not engage in any mere administrative work; but still there can be no doubt of their power and duty to inquire whether a body of rates prescribed by a legislature or a commission is unjust and unreasonable, and such as to work a practical destruction to rights of property, and if found so to be, to restrain its operation."

Still later, speaking in the *Knoxville case*, 212 U. S., 1, at page 16, the Court said:

"Disregarding for the moment all the errors which were committed in the Court below, the decision of this cause may be rested upon a broader ground, which is clearly indicated by the previous judgments of this Court. The jurisdiction which

is invoked here ought, as has been said, to be exercised only in the clearest cases. If a company of this kind chooses to decline to observe an ordinance of this nature and prefers rather to go into court with the claim that the ordinance is unconstitutional, it must be prepared to show to the satisfaction of the Court that the ordinance would necessarily be so confiscatory in its effect as to violate the constitution of the United States."

And again, in the same case, quoting from *San Diego Land & Town Company v. Jasper*, 189 U. S., 439, at page 441, the Supreme Court said:

"In a case like this we do not feel bound to re-examine and weigh all the evidence, although we have done so, or to proceed according to our independent opinion as to what were proper rates. It is enough if we cannot say that it was impossible for a fair-minded board to come to the result which was reached."

In *Wilcox et al. v. Consolidated Gas Co.*, 212 U. S., 19, at page 41, the Court said:

"The question arising is as to the validity of the acts limiting the rates for gas to the prices therein stated. The rule by which to determine the question is pretty well established in this Court. The rates must be plainly unreasonable to the extent that their enforcement would be equivalent to the taking of property for public use without such compensation as under the circumstances is just both to the owner and the public. There must be a fair return upon the reasonable value of the property at the time it is being used for the public."

In the *Minnesota Rate Cases*, 230 U. S., 352, at page 433, Justice Hughes speaking, said:

"The rate-making power is a legislative power and necessarily implies a range of legislative discretion. We do not sit as a board of revision to substitute our judgment for that of the legislature, or of the commission lawfully constituted by it, as to matters within the province of either. *San Diego Land & Town Company v. Jasper*, 189 U. S., 439, 446. The case falls within a well defined category. Here we have a general

schedule of rates, involving the profitableness of the intrastate operations of the carrier taken as a whole, and the inquiry is whether the State has overstepped the constitutional limit by making the rates so unreasonably low that the carriers are deprived of their property without due process of law and denied the equal protection of the laws."

Finally, I wish to refer to Judge Farrington's decision in the last Spring Valley case and I may say at the outset with respect to Judge Farrington's decision that it is not my contention in this case that your Honor should use Judge Farrington's findings of fact, whether they favor the city's side or the company's side; those findings appear in his decision for the most part, but it seems that it is practically impossible for Your Honor to make use of those findings without having knowledge of the evidence upon which they were based. There was, however, included in Judge Farrington's decision—perhaps I should say decisions as he rendered two of them—an outline of the principles of the law which he thought should govern in these Spring Valley cases and which, coming from this court, it seems to me should be of particular influence in guiding your Honor's decision. I am referring now to his decision on the preliminary injunction in the 1908 case, 165 Federal, 667, at page 682:

"This Court cannot control the discretion of the supervisors; it cannot substitute its judgment for theirs. The power and duty of fixing water rates is cast by the constitution on that board, and not on this Court. The law nowhere provides an appeal to this Court from an ordinance adopted by the Board of Supervisors, nor does it clothe this tribunal with any authority to review, revise, correct, or send back to that body for reconsideration an ordinance establishing the compensation to be collected for water. It has not been made entirely clear that the Board of Supervisors owed any other duty to complainant than to fix by ordinance a schedule of rates which, as a whole, will yield a just and reasonable compensation on the fair present value of the property used for San Francisco and its people; it may be that the rates were so adjusted that certain consumers will receive water at prices for less than it is worth; it may be that in determining the value of complainant's property some elements were placed too high, others too low, and

still others totally ignored; but if, on the whole, the result is reasonable, and complainant receives a just income, it certainly has no grievance and no cause of action. This Court will only consider whether the rates as a whole, and the value of the property taken as a whole, are fair and reasonable."

And again, on page 680, he says:

"Concerning the allegation that the Board of Supervisors 'refused to allow anything for the four important elements of value which they excluded, namely, franchise, going business, repairs of earthquake damage, and value attaching to Alameda system due to demonstration of permanency,' and in so doing that 'they acted arbitrarily' and 'without the exercise of judgment and discretion,' and therefore 'they violated their duty and went beyond the powers conferred upon them,' complainant takes the position that on application for preliminary injunction the Court may review the proceedings before the rate-fixing body, and, if it clearly appears that elements which should have been considered have been ignored, a presumption arises that the rates are confiscatory; that this presumption is so strong any presumption in favor of the validity of the ordinance is overthrown, and so conclusive that the Court will not permit the Supervisors to show that the deficiency from rejected elements was made good by generous allowance on other elements; therefore, the complainant is entitled to have the rates enjoined until the matter can be fully investigated, and such an investigation cannot be had before the final hearing.

"I cannot agree with counsel that such serious consequences flow from what is alleged to be arbitrary conduct on the part of the board. This case comes here on one vital issue: Are the water rates confiscatory? To this all other questions involved are mere incidents. If the water rates in question are confiscatory, then the ordinance is repugnant to the Federal constitution, and must be pronounced invalid. Its invalidity cannot be healed by showing the Supervisors were actuated by the purest motives, that they committed no error in applying the law to the facts, and that their deliberations were conducted in strict obedience to the rules which govern courts in the administration of justice, and in the admission and rejection of evidence. But, on the other hand, if it appears that the rates will afford complainant a just and reasonable compensation for the use of its property, the ordinance is not repugnant to the

constitutional provision invoked, because it does not deprive the company of anything whatever. And this is so even though it be shown that the board in its proceedings violated every rule in the law of evidence. The rates are either just and reasonable or unjust and unreasonable, and that fact must be ascertained by this Court from its own independent investigations, and not from a review of the proceedings before the Board of Supervisors to ascertain whether it erred in the admission or rejection of testimony, or whether, on the testimony before that body, it should have arrived at a different conclusion."

Friday, August 25, 1916, 10 A. M.

THE MASTER—Mr. Searls, I think yesterday, if I recall your argument, you spoke of the presumption which applies to legislative acts, which of course we recognize, and you spoke also of the fact, and it has been established I think by decisions in this court, if my memory is correct, that proceedings of the rate-fixing body are not reviewable by the Court, that the Court's proceeding is an entirely independent proceeding; that is your understanding, is it not?

MR. SEARLS—Yes, your Honor.

THE MASTER—Did it ever occur to you how difficult it is to apply the presumption when you have not the proceedings before you that you are reviewing? In other words, I confess freely that I have tried to follow those principles, and yet when I have not the proceedings before me to review and revise, or if I have them before me, neglect them, it is hard to see how you have any further presumption than the presumption that rests in behalf of any defendant; for instance, take it on the presumption as to the rate of return, I do not know in this case what rate of return the supervisors aimed to award the plaintiff here. So it seems to me I am acting entirely independently in the matter.

MR. SEARLS—My understanding was, your Honor, that the presumption went only to the results of the proceedings. Here is a body of rates set forth in the complaint in this action which it is admitted were passed by the Board of Supervisors after a deliberation and a hearing for both sides and that the presumption goes as to the conclusion, that is, that that body of rates is valid, and that

having been passed by the duly constituted authority there must be a clear showing of invalidity in results before the body of rates can be upset. In order to show that, it is not necessary that your Honor should have before you the particular steps the supervisors took in passing those rates, or that you should follow those steps one by one as it were; it is only to be noted that they reached certain conclusions, the results of those conclusions appearing in the net return which the company actually received under the ordinance, and unless the complainant can bring a preponderance of evidence to show that that net return was obviously unfair and confiscatory then the ordinance should be sustained. Perhaps as applied to this case, it is not very much more than the presumption which would exist in favor of the defendant in any event. I imagine the rule has been invoked more often with respect to rate ordinances which have not yet lived their life and have not been worked out.

MR. GREENE—Also on preliminary showings, Mr. Searls, isn't it? Is not that where the rule generally has been applied?

MR. SEARLS—I don't know as to that.

THE MASTER—As a matter of fact on preliminary showings we have the precedent of the Bonbright case that the Court will see what the parties did. Judge Morrow there, you will recall, dissected the proceedings of the Corporation Commission of Arizona, and said that they left out certain matters. You might say that you could justify that on the ground that they were trying to get any light they could to lead them to what would be the ultimate result for the purpose of the motion before them. All I am getting at, Mr. Searls, is this: I have made, as you know, the same statement that you announce in your argument; and yet I have sometimes in the interest of intellectual clarity wondered whether I have not been going through a form of words. If you apply the principle to its last analysis on the question we will say of rate of return, you may get on the one hand to the situation that was illustrated in some of the early decisions where the courts said if any return at all is allowed there is no confiscation—it might be only one per cent. Of course, they have departed from that, but it is least consistent with the idea that the presumption is to be allowed to the rate. You may get to a

middle ground which I think I may say—and I speak with entire respect—is illustrated by the opinion of the Supreme Court of this state in the Contra Costa case. I never have known what that opinion meant. The Court was trying to say that they did not know but what the 4 and a fraction per cent. was proper and spoke about presumptions; it leaves you quite in the air as to any guiding rule of principle. Then, on the other hand, you get to this situation, that if you regard it as entirely a matter of independent investigation in court you determine in the light of the evidence whether the return which you finally work out from the evidence is or is not a reasonable return. Everywhere you are influenced by a spirit of conservatism to require clear proof before invalidating the rate, and in case of doubt not do it. It amounts practically, it seems to me, to a statement to that effect, namely, that it is an independent proceeding and the presumption that is accorded is the presumption that the rate is right and that it must be clearly proved not to be right. If it were open to the Court to adopt the attitude that the Supreme Court has adopted in certain reviews of cases then you could give your presumption full play. I often wonder just how much the Supreme Court has meant by this statement, that it is not a board of revision, and so on. If they are passing on the decision of the State court on a writ of error, or passing possibly on the proceedings of lower Federal courts they might say, "well, we might agree with this, and not disagree with that, but on the whole it is fair and let it go at that." I don't know but what they may have a similar statement with respect to a rate-fixing body, although my memory does not serve me on that. If this is an independent proceeding this court as a trial court cannot adopt that attitude, it cannot say that the supervisors allowed something for going concern but did not subtract depreciation, but on the whole we think it is all right. I cannot take any attitude like that simply because it is a violation of the principle you have stated, and for the second reason, that I don't know what the supervisors did.

MR SEARLS—I appreciate the difficulty, your Honor, but I am still inclined to stand by the principle I have outlined.

THE MASTER—I am perfectly willing to follow you in that, Mr. Searls.

MR. SEARLS—I have not attempted in this case to introduce any evidence as to what the supervisors did, and I imagine from the conversation that ensued after the Bonbright-Geary case, that the Commission did introduce evidence as to what the proceeding before the Commission was, and the hearing was held on the basis of that type of evidence. The reason I have emphasized this point at the start is that it seems to me that counsel has brought into the case here on cross-examination certain evidence which does not properly belong here with reference to the consideration, which the Board of Supervisors and the city authorities gave in passing on the utility of certain properties and the non-utility of others, and it seems to me that that cannot be considered except in connection with all the rest of the acts of the Board of Supervisors and the city authorities. The question of value is tied up with it to such an extent that you cannot separate it.

THE MASTER—I see your point.

2. Actual Versus Theoretical Conditions.

MR. SEARLS—The second point which I desire to make at the outset and which I would ask your Honor to keep in mind in considering the defendant's case is that we have attempted in valuing the plant to deal throughout with actual rather than theoretical conditions as they were during the years in litigation—conditions of market, of supply, of demand, of population, of consumption, of values, of operating practices, and of interest rates. It has, of course, been impossible, particularly in arriving at the reproduction cost of complainant's properties as of December 31, 1913, to adhere strictly to this aim, but even at the risk of being theoretically inconsistent at times, it has seemed more equitable to counsel and witnesses for defendant to make the case fit actual conditions as nearly as possible. We have been less concerned in imagining what might happen in a hypothetical reconstruction of an existing plant than in consideration

of what is happening and what did happen. Whether or not our point of view in this respect is correct is, of course, for your Honor to determine, but I think that the evidence presented in behalf of the defendant and the argument which I shall attempt to make will be all the clearer to your Honor if you appreciate at the start that that has been our point of view and the basis upon which our case has been molded. I shall, of course, have occasion to deal with the application of this thought when I come to consider each of the subdivisions of the case.

It is "fair value" or "reasonable value" that the Supreme Court has said we are to determine, not "reproduction value" alone. To ignore existing circumstances and conditions in order to carry reproduction method to its theoretical extreme will not result in the determination of "fair value," and we have considered in presenting testimony in this case, that evidence as to theoretical amounts which should be credited to items which might have a place in reproduction value if carried to its theoretical extreme, would be wholly irrelevant and immaterial in this case, because we reject those elements of reproduction value as having no pertinence whatever in determining "fair value" or "reasonable value" of the complainant's properties. I might enumerate among the elements of the reproduction theory which come within this category the items of Paving over Mains laid after the mains were installed, overhead charges of land acquisitions, and going concern value, based on comparative plant theories.

In this connection there was a discussion by Mr. John Eshleman, now deceased, formerly President of the Railroad Commission of the State of California, and after that Lieutenant-Governor of the State, which was delivered before the Conference on Valuation held in Philadelphia, November 10th to 13th, 1915, under the auspices of the Utilities Bureau, and is reported in Vol. 1, No. 3, of the Utilities Magazine, January, 1916, a copy of which I have handed your Honor already.

Counsel has seen fit to quote to some extent from the work on valuation by Mr. Floy, who had more or less of a national

reputation as a public utility engineer, and I think that these statements of Mr. Eshleman, coming from one who has had experience on the public side of the question, are also of interest. He says (p. 8):

"There are two absolute bars to the application of the reproduction theory of valuation to utilities. The one is the impossibility of imagining the monopoly never to have existed and the conditions which such monopoly has produced still there; of thinking the effect of a certain known cause and at the same time conceiving cause never to have operated. The other is the impossibility of thinking monopoly and competition at the same time; the impossibility of having the condition of the property of a monopoly affected by a duplicate competing agency and still remain unchanged.

"Justice Hughes discusses the first difficulty in the Minnesota Rate Case (*Simpson v. Shepard*, 230 U. S., 352). He there says:

"Moreover it is manifest that an attempt to estimate what would be the actual cost of acquiring the right of way if the railroad were not there is to indulge in mere speculation. The railroad has long been established; to it have been linked all activities of agriculture, industry and trade. Communities have long been dependent upon its service, and their growth and development have been conditioned upon the facilities it has provided. The uses of property in the communities which it serves are to a large degree determined by it. The values of property along its line largely depend upon its existence. It is an integral part of the communal life. The assumption of its non-existence and at the same time that the values that rest upon it remain unchanged is impossible and cannot be entertained. The conditions of ownership of the property and the amounts which would have to be paid in acquiring the right of way supposing the railroad to be removed are wholly beyond reach of any process of rational determination. The cost-of-reproduction method is of service in ascertaining the present value of the plant when it is reasonably applied and when the cost of reproducing the property may be ascertained with a proper degree of certainty."

"Those urging the reproduction theory to determine the price upon which an earning shall be allowed are confronted with a very interesting dilemma. If their theory is to deal with the very

property in question as a monopoly, they cannot, as Justice Hughes points out, think it away and at the same time have the results that come from its presence. On the other hand, if it is an alternative proposition which they urge and the thing which they have a right to exact is that which the public or a competitor would have to pay to put in a second plant identical with their own, they have to be confronted with the results of such duplication and they come face to face with the thing I have had in mind from the beginning, namely, the threat power of the public. Owners of public utility property would never for a moment contend for the reproduction theory if they thought the public would take them at their word. For as far as price is concerned under this theory it is utterly immaterial to the public whether they buy the existing utility property or leave it there and proceed to duplicate it. For do not the proponents of this theory seek to capitalize not only the physical property, but every known disadvantage to the public, such as paving over mains, for example, and every known or imagined advantage to themselves, such even as having consumers attached to the system, if you please? And they place their reliance on one thing alone and that is that the public if they should build a competing utility in this field would lose money because of the dividing up of the business. On this they pin their hope when they pile Ossa on Pelion in piling up the items with which the public shall be taxed. By what license do they forget that the loss of business by duplication will fall on them too? If they take the horn of the dilemma which supposes a property to remain in place and the values produced by the very monopoly itself and by reason of its being a monopoly, and assume the building by the public or a competitor of a second system identical with their own, then they have in fact not imagined the monopoly out of existence but put it out of existence. Thus they are left to choose whether they are merely theorizing or speculating, as Justice Hughes calls it, on things that might exist if other things that do exist did not exist, and are so adopting the method that, as the learned Justice points out, has no rational basis, or are prepared to justify in good faith their threat and to accept the results thereof and be ready to meet the emergency which would arise if the public exerted its threat power too and took them at their word and built a second plant."

With these thoughts in mind on the reproduction theory I proceed to a consideration of the main elements of this case.

3. Main Elements of the Case.

These are of course the rating base or value for rate-fixing purposes, the net return received under the rates in question and the minimum fair rate of return which must be allowed under the constitutional guarantees. To these may be added some discussion of the value of the service in question, although the uniqueness of water as a commodity and the practical monopoly which the duty of distributing it entails make this last subject difficult of intelligent discussion.

II. VALUE OF PLANT.

1. General Consideration of Evidence.

The task of determining the value of complainant's properties as measured by the cost of reproducing them has, of course, furnished the greatest burden of this case, and although there is some doubt in my mind, and, as I read the decisions of the courts, considerable doubt still remaining in the minds of the Judges who are trying rate cases to-day, as to the weight which should be given reproduction value as a basis for determining validity of rates, the importance which complainants ascribe to reproduction value in this case as a basis for rate-making necessarily compels us to give very careful consideration to the elements which go to make up this valuation. Before reverting to them in detail, however, it seems well to me to outline certain general legal, and what might be termed psychological, features which have come into this valuation. First of all it seems almost an axiomatic proposition that if the complainants are going to use reproduction value as a basis for determining the validity of the rates the burden of proof is clearly on them to establish what reproduction value is. It is not enough that they make out a *prima facie* case at the outset establishing by the direct testimony of their witnesses certain figures which they claim should be used. They must maintain those figures through the test of cross-examination and over and against the figures which are produced by the defendants' witnesses, so as to show a clear

preponderance of evidence in favor of their contention. If there are reasonable doubts in your Honor's mind they should be resolved in favor of the defendant, not of the complainant.

In examining the record in the case, however, and as a matter of observation during the trial, it would appear that counsel has with great adroitness thought to shift the burden of proof. Having taken the initiative by virtue of his position as complainant in the case and established by the opinion of his experts certain figures, he repeatedly and consistently seeks in his cross-examination to place the defendants' witnesses in the light of detractors rather than in the light of original valuers. The cross-examination of our real estate witnesses is replete with questions such as this: "Why do you condemn this piece of land?" as if our witnesses were seeking to condemn complainant's property instead of putting an honest valuation upon it. Again, in his cross-examination of our witnesses on structural properties, counsel has sought by conjuring up all sorts of imaginary possibilities to show that our engineers have made careless valuations because they have not included specifically in some cases an allowance for the particular accident which counsel imagines might happen. But I take it that your Honor is not going to approach the defendant's testimony in the frame of mind that counsel seems to have adopted toward it. I take it that your Honor will assume that our witnesses have attempted to give fair valuations of the complainant's property, until the contrary is shown.

If any comparison is to be drawn on the question of bias—and by bias I do not necessarily mean intentional bias—it seems to me that the evidence shows it should be resolved in defendant's favor. Take, for example, the real estate witnesses. Almost without exception the witnesses who have testified for complainant have been directly or indirectly connected with or interested in complainant's side of the case for years. Mr. Baldwin has been their real estate agent, has purchased large tracts of land for them; so has Mr. Clayton, and Mr. Gale and Mr. Mortimer. Mr. Schween has been employed by them in connection with their agricultural department.

Mr. Parks is a tenant of complainant, depending upon complainant's favors for a continuance of his lease. I might go on and enumerate witnesses in other branches of the case: Mr. Hermann was formerly Chief Engineer, Mr. Lippman their banker, Mr. Weeks their broker, Mr. Muhlner their auditor. I do not say that their position with reference to complainant necessarily biases these witnesses, but I do say that if there is anything to be said at the outset, before the witnesses have been examined, as to the attitude which they have assumed there is more to be said in the way of a bias on the complainant's side of the case than as to those who have been examined for the defendant. Again, certain of the other witnesses employed by complainant have been more or less directly interested in the enhancement of valuations; Mr. McDuffie by reason of his extensive holdings west of the Twin Peaks is directly interested in the enhancement of real estate values in that section, and the same may be said of Mr. Hoag with respect to values adjacent to the Hillsboro district in San Mateo County. On the other hand, the real estate witnesses employed by defendant have without exception been men who are not directly or indirectly connected with the city in any capacity affecting this case. The record shows that they were instructed to report their ideas of a fair appraisalment. There was not a single item of circumstantial evidence tending to show that they could have been consciously or unconsciously influenced to express any biased opinion. Their personal interests, if any, in nearly every case lay, as did the interests of complainant's witnesses, in giving an enhanced value to property in the neighborhood in which they operated. Yet, counsel has almost without exception asked each of these witnesses, "Why do you condemn this property?"

Again, on the question of structural values; we have on the one side Mr. Hazen's valuation, made without any particular consideration of cost detail, based almost entirely on his eastern experience and arranged in such general terms that he can say on cross-examination: "Yes, I have considered this or that item, but I cannot tell you in dollars and cents how much value I gave to it." In cross-examination of defendant's witnesses, however, having established by direct questioning the elements of value which our engineers are able to recall

that they considered at the time, counsel conjures in his imagination an infinitude of things that he says might happen and announces triumphantly, "You have not included those in your valuation." And the psychology of the situation here is that it is much easier to imagine things that might happen than to imagine those that might not happen. Probably no two engineers have had identical experience in construction; but to attempt to say because one engineer has not made specific allowance for some element that some other engineer once had to deal with, the first engineer's valuation is carelessly made and must be added to, is merely an illustration of the manner in which complainant has sought to shift the burden of proof in this case. The complainants have sought rather to make us prove that these things would not happen rather than to prove themselves that they would happen.

Again, in the case of water rights we have Mr. Herrmann, who had been chief engineer of complainant for several years, finding a certain valuation based on a use of water as foreign to the San Francisco Bay region as the Desert of Sahara is to the Alaskan coast in the matter of rainfall and economic development of water. And because Mr. Lee, who has not a shade of reason for giving an opinion biased in a downward direction, ties to the only concrete facts there are tending to show the real value of complainant's water rights, and comes out with a figure about half of that which Mr. Herrmann names, counsel becomes very indignant at this supposed depreciation of their water-right values.

I shall, of course, have occasion to discuss in detail the evidence of all these witnesses later, but I have directed your Honor's attention to the situation at this point in order that you may perceive, if you have not already done so, the psychological position in which counsel has sought to place us throughout the trial. Under his theory we are here beating down the value of his property, not giving an honest affirmative opinion of its true value.

Of course, there is in all of us an instinctive tendency to boost property values, except perhaps where we are starting out to buy a property, and to look upon the man who can give us any sort of a plausible reason as to why this or that element of value should

be added with more favor than upon the man who attempts to hold back and place a conservative valuation. Counsel has gone further than that; he has sought to make our witnesses out as rank pessimists, detractors and otherwise obnoxious persons. I do not wish to be understood, in making these statements, as implying that complainant's witnesses have been making wilful attempts to inflate values, but it does seem to me that there is more danger of a point of view taken by the valuator whom complainant has employed becoming, perhaps unconsciously, biased in favor of excessive valuations, because of the very reasons I have just stated, than there is of the opinions of defendant's valuator becoming biased in the other direction. There are a thousand possibilities which can be plausibly presented by an expert which might happen to increase the value of property to one which would tend to decrease it below the point of conservative reasoning. I would therefore impress upon your Honor that the test that should be fairly made in arriving at your decision as between two valuator should not be: has the defendant's witness disestablished the testimony adduced by the complainant's witness, but rather: has the complainant's witness justified the excess in valuation over that given by defendant's witness? Unless your Honor does take this point of view the burden of proof will appear to have been shifted from the complainant, where it rightfully belongs, to the defendant, where it does not belong.

Until leading counsel for complainant opened his argument in this case, we of the defendants had not realized what a precarious condition we were in. We had supposed that the men who had testified in our behalf in this case were decent, honest, respectable citizens—men who were imbued with the dignity of this tribunal and the gravity of the issues which were before it; but we find, alas, from counsel that it was not so. We find that the Spring Valley Water Company had gathered into their cohorts of experts all the honest, fair-minded, intelligent men in the State of California, if not the country at large. That being the case, there was, of course, nothing left for the defendants except to gather the rest

and residue of the experts, and to accept counsel's characterization of them and summarize in terms of the immortal Kipling:

"We are most of us liars, we are 'arf of us thieves,
And the rest are as rank'as can be."

But counsel has made one mistake: he kept up his tirade too long. Day after day he has thundered invectives and innuendoes and insinuations, until with a flash of relief there came to my mind the old, old axiom which we all learned when we first entered the law profession—"argue your case on the law if the law is with you, if not, argue the facts; if you have neither with you defame your opponents." Nine-tenths of counsel's argument has been consumed in defaming our witnesses. If the old adage still holds, it isn't necessary for me to state conclusions as to the condition in which counsel finds his case. I am not going to dismiss his argument in these general terms. I shall in due time answer it with respect to each of the witnesses whom he has, I believe, so unfairly accused. But the remarks I have just made are entirely apropos of the general situation.

With these preliminary observations as to the general features of the testimony relating to reproduction value, I pass to a consideration of the main elements in this valuation. In arranging them for argument it has seemed to me preferable to shift somewhat the order in which they were presented at the trial. I shall accordingly take up the question of structural values first and follow that by a discussion of realty value, water-right value, and questions of used and useful property, the latter three topics appearing to me to be closely interrelated.

2. Structural Valuation.

Witnesses—The principal witness testifying to the cost of reproducing the structural properties were, of course, Mr. Hazen for the complainant, and Messrs. Dillman and Dockweiler for the defendant. Complainant has sought to reinforce Mr. Hazen's testimony at certain points by the evidence given by Messrs. Herrmann, Lippincott and Elliott. And by almost marvelous coincidences they almost

always come out with figures higher than those presented by Mr. Hazen. Perhaps I should pause here to congratulate complainants on the splendid team-work their witnesses have shown. I venture to say that no more marvelous a set of coincidences has ever arisen in legal history than has been shown by the unanimity of the verdicts which complainant's witnesses have given on every contested point. Mr. Hazen was always presented as the conservative; over the protest of all the other witnesses he "reduces" the valuation below any point which they could justify. Mr. Metcalf, always modestly in the background, rushes to the front of the arena every time a possible discrepancy shows up. In passing I should fail in courtesy if I did not pause to compliment Mr. Metcalf on his work as presiding genius for complainant in this case. From the standpoint of form and method of presentation and harmonizing of his record he leaves nothing to be desired. It is only when we come to consider whether the presentation of complainant's engineers has been a presentation of evidence or of argument that we even question the sufficiency of his work. I frankly admit—and we have no apologies to make in doing so—that there is no such team-work on the defendants' side in this case. If your Honor could imagine two men of more diverse temperaments and opinions in general than Messrs. Dillman and Dockweiler, your Honor's imagination is better than mine. Mr. Dillman, a man of wide construction experience, executive temperament, a predeliction for reaching results rather than analyzing them; Mr. Dockweiler, a man of far less construction experience, but of keen analytical temperament, basing his judgment on carefully kept cost data and construction records gathered from most of the large construction jobs ever undertaken in the State. And yet, with all their dissimilarity of temperament and methods of opinion as to details, these men reach results which in total vary by a sum which is quite insignificant. If your Honor is considering the question of preponderance of evidence, it seems to me that far more consideration should be given to results attained by these two witnesses than to results attained by the magnificent team-work exhibited by complainant's witnesses. Nor has there been lack of support in almost every element of the structural valuation of the

figures adduced by Messrs. Dillman and Dockweiler by men who were specialists in that particular line of construction. Mr. Newman on concrete; Mr. Ellis on excavation and earth dams; Mr. Noyes, Messrs. Rhodes, English, Phillips and Stocker, have practically corroborated their figures at every point. One divergence may well be noted in the testimony of Mr. Dorward on the question of riveted pipe, and that question I shall discuss in connection with the subject of pipe. But, taking their evidence as a whole, it has been fairly well corroborated by the testimony of all of these additional witnesses who were without exception men with experience in western construction and with full knowledge of the details of construction costs. So much for the testimony on its merits. Your Honor must also give consideration to the qualifications of the witnesses who adduced it. No one who has had any familiarity with water-supply problems in this country would for a moment question the national reputation of Allen Hazen as a hydraulic engineer. He is considered perhaps the greatest national authority on the question of water-supply sanitation. His qualifications show that he has been called into consultation by practically all the large eastern cities. With a brilliant education, both in this country and abroad, he appears to have stepped almost immediately from the universities of Europe into the office of a consulting engineer. An examination of his testimony as to his qualifications given on pages 4163 to 4179 of the record shows clearly that his professional reputation has been derived along consulting lines; by that I mean he has advised generally with respect to the source of supply, sanitation measures to be adopted, has designed works for the purpose of bringing in water supply, and in a few cases, such as that of Springfield, he has generally supervised the construction of such works. There is no testimony showing that Mr. Hazen has ever gotten down to the brass tacks of construction, has acted as a contractor's engineer directly in charge of the work, familiar with all the details of construction. There is no testimony showing that Mr. Hazen ever constructed any works in the Western States or, with the exception of the work he did in Colorado and of general review of the valuations already made by other engineers in the People's Water case, that he has ever valued

any water properties in the western part of the country. In fact, he states on pages 4178-9 of the record frequently he never has made any such valuations or done any such work. I should add, of course, that he did make a preliminary estimate of the cost of the Sacramento River project for the City and County of San Francisco. The scope of this estimate appears on page 26 of his exhibit 164, and shows that it was nothing more than a preliminary estimate for a project which was never carried out. The record also shows that Mr. Hazen talked with a great many people on the Pacific Coast prior to and at the time he valued the Spring Valley properties; that he spent considerable time in valuing them. But taking his testimony as a whole and his qualifications, this much appears very certain: that Mr. Hazen has no first-hand knowledge whatever of labor conditions or material prices in the western cities, and particularly the Pacific Coast States. I think it only fair to follow the example set by counsel and read a few excerpts from the record on this point, and I desire particularly to note the effect of assembling quotations gathered from all parts of the record as counsel did with the testimony of Mr. Dockweiler and Mr. Dillman as to their qualifications.

Reading from page 4593:

3. Hazen's Qualifications.

"Q. How did you acquire your familiarity with labor conditions on the Pacific Coast, Mr. Hazen? A. By observation and inquiry.

"Q. You never have had any actual experience out here in making pipe or other water-works materials? A. I have not, no."

And from page 4514:

"Q. I think you said several times you have not had any pipe built here yourself? A. No, I have not.

"Q. Have not contracted for any here? A. No.

"Q. Nor designed any? A. No."

And from page 4516:

"Q. From what source did you obtain this information?

I do not care about the names particularly, but I would like to know who the people were, professionally?

"A. I had no estimates from anyone that it would cost 20% more to make pipes in San Francisco. That represents my judgment based on knowledge of labor conditions and what I have learned by talking with a good many people who had to do with these matters in different parts of the country.

"Q. Do you know the wages which are paid in the local pipe factories? A. No, I have not inquired as to the detail schedules.

"Q. Do you know the wages which are paid in the eastern factories? A. Not in detail, no."

And from pages 4831, 4832:

"Q. Did Mr. Clark give you a detailed statement as to the cost of that? A. It is printed in his paper.

"Q. In the proceedings of the American Society? A. Yes.

"Q. And that is the source from which you derived your information? A. Yes, it is."

And from page 5099:

"Q. Now, on the question of clearing the site, you put that in at \$60 an acre; have you any information or knowledge of the cost of clearing land similar to the land at Pilarcitos and San Andreas in California? A. Not in California, no, sir.

"Q. And in the Eastern States do you find the same growth that you do out here on the hillsides? A. Not just the same, no, sir.

"Q. Not having supervised any jobs of clearing out here, you would not know whether the cost would be exactly the same, or not, would you? A. No, sir, I should not.

"Q. What wages and hours did you assume would be used in that work? A. I made no separate assumptions for that item.

"Q. You just took your eastern costs and made an application to California on general principles? Is that it? A. Yes."

At page 6701 and at page 6702 this witness said, speaking on the subject of tunnels:

"A. * * * A few years ago I had occasion to make

estimates for some small tunnels, tunnels comparable to these; that is to say, as small tunnels as could be economically driven, of quite considerable length, for the city of Pittsburg, and in connection with that one of my partners looked over the ground and found only comparable tunnels that had been driven within a few years, and to get what information about them could be secured, and quite a memoranda was made out relating to these small tunnels, and their cost and difficulties. I took that as a basis when I made this estimate a year and a half ago, adding a few items, a few other items of tunnels that had been driven in the interval that I knew about, to see how this data could be applied to the Spring Valley tunnels. Of course, I recognized that these tunnels in many respects are not comparable to the Spring Valley tunnels, and the difference will have to be faced as we go on."

And at page 4541, with regard to pipe lines, he said:

"Q. In advising your own clients in the east, where the construction of a pipe line exceeding, say, 20 inches in diameter is contemplated, you would not advise the use of wrought-iron today, would you? A. I have done a great deal of studying on that in the last 10 years and I prepared specifications for wrought-iron pipe and in one case we got alternate bids on wrought-iron as compared with steel. *I have never laid any wrought-iron pipe and I doubt if large wrought-iron pipe is going to be laid.*"

At page 4563, on the subject of excavations:

"Q. * * * , did I understand you to state the other day that you did not make any analysis of your 75 cents per yard, and that that is just your opinion as to the cost of excavating and back-filling—is that correct? A. Yes.

"Q. Did you use any other data to check that, besides the Portland costs which you gave me, and the Spring Valley costs? A. Yes, I had in mind all the experience in trench work that I have had.

"Q. You have not had any experience in trench work in California or on the Pacific Coast, have you? A. No, sir, I have not.

"Q. And you have stated that labor conditions are very different here than they are in the east? A. They are very different, yes."

And at page 4179:

"Q. Have you constructed or had charge of the construction of any water works in the Western States? I am speaking now of the States west of a line drawn through the eastern boundary of California? A. No, sir, I have not."

Inasmuch as Mr. Hazen criticised Mr. Dockweiler's quotations on riveted pipe of the dates 1914 and 1915 on the ground that there were too many pipehouses in California, I asked him the following questions on pages 4815-16:

"MR. SEARLS: Mr. Hazen, in 1913 there were no less pipehouses in the State than there are now, were there?

"MR. HAZEN: I cannot say as to that.

"MR. SEARLS: You don't know that there were any less number, do you?

"MR. HAZEN: No, I don't know as to that."

On the subject of flumes he says, at page 5213:

"A. * * * As far as the lumber work is concerned, I went over that with Mr. Lawrence last year. I had had no experience building flumes. Mr. Lawrence had built flumes. I went over the business with him and cross-questioned him on it and made sure to my own satisfaction that he was sound and I took his figures. That is all I can say about that. I think he has made further studies of it, and I don't know but what he has modified his figures somewhat. If so you will have to ask him about that. I took them on the basis of the figures he gave me and with some analysis and arrangement of them by myself."

Mr. Hazen also referred to the necessity of being entirely familiar with comparative jobs used as a basis for corroborating evidence, and I asked him, with respect to the Portland pipe job, as follows:

Reading from page 4517:

"Q. Now, take your Portland case; do you know any of the details of the labor cost in Portland? A. Not the details, no.

"Q. Did you inquire at any of the local pipe factories in Portland as to what it cost them to make pipe?

"A. No, I did not.

"Q. Or how much more their labor cost was than in the east?

A. I made some inquiries as to the rates of pay of labor, but not in pipe shops.

"Q. That would not be very helpful unless you knew something about the scale, would it? A. No."

And from page 4764:

"Q. You testified that you never had any experience in fabricating pipe, or in the direct handling of shop work, did you not? A. I have never run a shop. I have had my inspectors in a great many shops, and I have visited them.

"Q. Have you ever had any experience from the standpoint of the pipe manufacturer? A. No, I have not."

And from page 4576:

"Q. Mr. Hazen, you stated that you found that bids went above preliminary estimates where the estimates were based upon specifications. Did I understand you correctly in that? A. That often happens.

"Q. Did you find any trace on the Pacific Coast where that happened? I put it that way because my source of information does not extend as far east as yours does?

"A. I don't think of a case on the Pacific Coast. I think of a very significant case in Australia, where I made an estimate for a piece of work; human nature is a good deal the same all over the world."

I want to say this for Mr. Hazen, that his method of valuation has been entirely consistent with the limitations I have just stated as to his qualifications. He has, for the most part, taken prices on Eastern work and added to them such percentages as, in his opinion, were necessary to meet Pacific Coast labor conditions and increased freight rates. He has also in cases made some deductions which, in his opinion, compensated for climatic advantages on the Pacific Coast. But, looking at the evidence which Mr. Hazen has adduced, and divesting it of the polished finish with which he is wont to cloak his ideas, I have been unable to find anything in the record which should justify your Honor in ascribing a preponderance of weight to Mr. Hazen's testimony over that

of any other witness. Were the problem before your Honor one of devising the best type of structures necessary to store, convey and distribute Calaveras waters; were it a problem of deciding upon the best composition of metal for pumps, or pipes, or other water-works structures to meet given conditions of soil and climate; or were the problem one of gathering the book records of completed cost of Eastern works from the companies building them, I would unhesitatingly join in the recommendation of Mr. Hazen for the task. But when the problem before your Honor is rather one of determining as a layman, from the engineering point of view, the cost of reproducing water-works structures in and about San Francisco Bay and considering the question purely from the standpoint of qualifications of witnesses, I find no justification for attaching any greater, if as great, importance to the testimony of Mr. Hazen as should be attached, for instance, to that of Mr. Dillman.

Bear in mind, your Honor, in making this statement I am applying it solely from the standpoint of the qualifications of the witness and not from the standpoint of the reasons which he may adduce for his figures. I make that statement because I think in some cases Mr. Hazen's reasons may have been better than Mr. Dillman's. I am prepared to state that. But, speaking of it on the basis of qualifications, I do not think his testimony should be given the greater weight.

4. Dillman's Qualifications.

It is true that our engineers have been local men. While Mr. Dillman has had extensive railroad experience in the East, as is shown by his testimony on qualifications on page 4255 of the record, his experience with respect to water works has been confined principally to the States of California and Oregon. Referring again to the record (page 4256), we find that Mr. Dillman came to California in 1892; managed a contractor's outfit on the Poso Irrigation project; built the Rio Bravo canals in Kern County; made investigation surveys and plans for an irrigation plant for the North Tule River; developed water supplies for railroad com-

panies in Wyoming; built pumping plants, dams and flumes in Oregon; constructed pumping-plant wells and pipe lines for the Contra Costa Water Co. in Oakland; acted as consulting engineer for the San Lorenzo Water Co.; installed new machinery and air lift for them near Mt. Eden; made a valuation of their plant at Haywards before the Railroad Commission; appraised a water plant in Berkeley and another one at Livermore; has been engineer for the Oakdale Irrigation District since 1910; designed an entire system of irrigation, canals and works for them; built new water works and sewer plant for the City of Oakdale; and acted as chief engineer of the Western Pacific transcontinental railroad. In connection with his qualifications, also, (page 4259) Mr. Dillman emphasizes, with respect to the construction of dams, the peculiar characteristics, from an engineering standpoint, of the dams in the Western States, particularly in California. This work which Mr. Dillman actually did as a construction engineer brought him in touch with practically every character of structure used in water supply of San Francisco. He has developed, in connection with his discussion of each of these structural subjects, his familiarity with the type of construction used, and his judgment as to values has been based upon his own personal experience in building and constructing these works. Mr. Dillman does not keep detail cost records; he does not believe in doing so. But in this thirty years or more of engineering practice in the locality in which the Spring Valley Co. structures are situated the unit costs of doing certain classes of construction have become a matter of elementary knowledge to him. That does not mean that the unit costs on every job would be the same, but it does mean that when Mr. Dillman has compared each of the Spring Valley structures, as he has testified he has, with his own experience as to the cost of that type of construction and applied to it his first-hand knowledge of local labor conditions, material prices and climatic conditions and everything else that goes to affect the cost of a job, Mr. Dillman's judgment stands as a pretty fair indication of what the cost of that job is going to be. This statement of mine is corroborated by his own experience in the construction of the Oakdale water system.

Your Honor will recall that he made an estimate for the construction of that system, amounting to something like \$2,000,000, and he made it on the same lines that he has made this estimate, and that the work was actually constructed within his estimate.

Mr. Dillman has not attempted to go outside of the construction with which he is familiar; for instance, in the case of riveted pipe he has valued the Spring Valley pipe line on the basis of what it would cost to lay a steel pipe of the same capacity, because in this present day of construction in California no one lays riveted wrought-iron pipe lines. And he feels that it would have no greater value than the equally efficacious steel line. It is possible from your Honor's point of view that Mr. Dillman is in error in that particular instance; that the identical structure should have been valued on the basis of what wrought-iron pipe would cost. I suppose Mr. Dillman might have dug up from the records the cost of some Eastern job and attempted to transpose it to California conditions, but, as he frankly admits, he has had little experience with wrought-iron pipe and habitually uses steel instead in his construction, I think he is rather to be commended for sticking to the types of construction with which he is familiar even at the risk of having his valuation, which was made on the basis of pipe giving the equivalent service, discredited. Again, from the standpoint of a valuation engineer, Mr. Dillman has certainly qualified. He has already valued and testified as to the value of the Livermore and Haywards plant before the Railroad Commission; has made a valuation of the Contra Costa plant in Oakland for that company (record, page 4266). One thing appears very clearly from Mr. Dillman's qualifications and throughout his testimony in the case: he is not in any sense a professional valuator. His opinions are fairly and frankly expressed irrespective of which side or contention they favor. Counsel has put me to considerable trouble in this argument in pulling out of the record some of the statements which Mr. Dillman made, which were not in my favor; he made them, nevertheless, and I think he made them fairly and frankly.

He refuses to be an analyst, but he adduces ample support for

his opinion from his own personal experience in construction and his knowledge of other local comparable jobs. And it is his very familiarity with the details of costs of construction in this locality that enables him to form a reliable judgment upon the cost of a given piece of work without respect to an analysis of the exact amounts ascribable to the cost of each operation. A procedure which would be dangerous in the hands of a man who had had less actual construction experience in this locality becomes safe in the light of his extensive experience and knowledge of the completed cost of construction. I do not hesitate in saying that the Court would not be justified in accepting testimony of a similar character adduced by Mr. Dockweiler. Admittedly, Mr. Dockweiler's experience in actual construction is considerably less than that of either Mr. Dillman or Mr. Hazen. His judgment on costs as a whole, therefore, is not entitled to the same weight until he shows by careful analysis that his results are correct. This showing, it seems to me, is made in the record. While consideration of the length of the record, which result impelled me at the trial of the case to abstain from presenting in full detail Mr. Dockweiler's analysis of the costs of the various structures, there is certainly ample evidence adduced to show the method by which Mr. Dockweiler obtained his results.

5. Dockweiler's Qualifications.

Before going into this I want to pass briefly on his qualifications. In the first place, Mr. Dockweiler himself makes no contention that his experience in charge of actual construction has been very extensive; nevertheless, he has had experience. Commencing in 1891 he served three years as City Engineer of the city of Los Angeles, during which time he made a report and estimate on proposed water works for Los Angeles (Record, p. 4194) and designed and constructed the outfall sewer from Los Angeles to the Pacific Ocean, including the construction of three tunnels on the route, one about a mile long. During 1895-6 he was engaged in private practice, and in 1897 again became City Engineer and served for two years. That might be some indication that his

services in the first term were satisfactory. During that time he completed plans and estimates for the cost of an entire water-works system for Los Angeles. He also designed the Broadway tunnel, which was, however, built by his successor. During the following years he was engaged in mining engineering for various properties in California, British Columbia, Nevada, Arizona and New Mexico. In 1904 he was first engaged in the appraisal of the Spring Valley water plant for the city of San Francisco, testifying in the 1903 and 1904 rate cases. The degree of familiarity which Mr. Dockweiler must have acquired with the properties of the Spring Valley Company can only be understood by reading the record and briefs in that case. But I think that the showing made at the trial of this case before your Honor has been that Mr. Dockweiler is perhaps as familiar with the history of the Spring Valley Water Company and the construction of its works as any other man living, except Mr. Schussler. I am sorry, by the way, that complainant did not see fit to produce Mr. Schussler in this case; I believe he would have been able to tell us many very interesting facts about the history of this plant which would have been of service to us in reaching a valuation as of 1913.

In 1906 Mr. Dockweiler made a similar appraisal of the plant of the Contra Costa Water Company for the city of Oakland. He appraised the plant of the Marin Power and Water Company for the municipality of San Rafael; and the Marin Municipal Water District; also the plant of the Watsonville Water, Light & Power Co.; constructed a reclamation levee near San Rafael to drain tide lands, including the construction of a pumping station; and has also been concerned in the operation of mining operations in various companies in Fresno County, Tonopah and near Watsonville during the past few years. He made an appraisal of the Crocker-Hoffman irrigation works for the company owning the same, showing that his employment has not been exclusively by municipalities. He is at present retained by the city of Richmond for the designing of a complete water system for the supply of the city from Sacramento River sources.

This showing of the line of work in which Mr. Dockweiler

has been engaged demonstrates that his experience has been more along valuation lines than construction lines. But if this disqualifies him from testifying credibly in this present case—or, if it does, it disqualifies Mr. Metcalf also. The record shows that Mr. Dockweiler has made extensive studies of the theory of the valuation of public utilities, that he is familiar with the principles under which a valuation engineer should work so far as they are laid down by the courts, and, more than anything else, it shows that he has made a conscientious effort to build up an accurate synthetic valuation of the company's structures.

While this might be a dangerous procedure for a man who had not spent practically all of his professional lifetime in this State familiarizing himself with all important construction work and keeping careful records of the costs on jobs which he had an opportunity to observe, it does seem to me that Mr. Dockweiler's effort to place the true value of these properties before your Honor is not deserving of either the criticism or the ridicule with which counsel has from time to time sought to becloud it. There may have been errors here and there, but so far as the record shows there have been no very serious or uncorrected errors. It has been something of a revelation to me, in preparing this case, to see the thoroughness with which such a valuation can be built up on a purely synthetical basis. Mr. Dockweiler's experience has been at least sufficient to give him a first-hand knowledge of the ordinary methods of construction and he has supplemented this very extensively by observation and study. He has kept careful records, and I am sure he would ask me to add that they are well indexed, of all the data that have come into his possession, including prices of materials, labor costs, equipment costs and construction records. In using these data he has examined each of the many hundred structures constituting the Spring Valley system and made a detailed appraisal of the cost of constructing them. I shall have occasion to discuss some of these appraisals in connection with the more important structures. Considerations of time make it impossible for me to discuss them all or for your

Honor to consider them all in detail. If your Honor finds upon examination of these more important structures that Mr. Dockweiler's methods have tended to attain results which are approximately correct, I submit that your Honor should feel justified in accepting his results attained as to the other structures on the mere showing that the same method was used.

As I stated before, Mr. Dockweiler's method of valuation cannot be compared in detail with that of any other engineer who has testified in this case. That does not necessarily mean, however, that Mr. Dockweiler is in error in his results. In fact, the practical corroboration which Mr. Dillman, with his long record of practical construction experience, gives him in the final results when taken in connection with the supporting testimony of the other engineering witnesses for defendant, all of whom were practical construction men, adds weight to the method that he uses. It at least has the advantage of being the method most capable of mathematical demonstration and least reliant upon expert opinion. There have been times in the trial of the case when I myself have lost patience with the mass of data which it seemed necessary to handle in connection with his appraisal, but as I review the record in its entirety the results of the careful and painstaking effort which this witness has made to present to your Honor a carefully, and accurately prepared valuation appear to me in a much more favorable light.

Counsel made the statement in argument that Mr. Dockweiler was withdrawn before the close of the case, supposedly because of incompetency. That statement at this point I wish to deny categorically. The only reason for Mr. Dockweiler's withdrawal at that time was that the result of his valuation of structures was practically the same as Mr. Dillman's; he had not valued any of the other items, and to retain him to value the properties as a whole would be a needless duplication; moreover, he had a very pressing engagement in the State of New Mexico, and he was compelled to keep that engagement or suffer a serious financial loss.

6. Summary of Points of View.

If I were to summarize the points of view of the three principal valutors in the case I should characterize Mr. Hazen's point of view as that of a highly educated consulting engineer, who has had wide experience in matters of design and general supervision, and particularly along lines of sanitation engineering, but who has not shown in this record great familiarity with details of construction costs, or any familiarity, except that gained by the purest hearsay, of construction methods or construction costs in any of the Western States, seeking rather to apply his Eastern experience and cost records by the judicious interpolation of percentages, usually percentages of addition, to cover changes in condition which he himself recognizes and admits in Western construction. I should characterize the point of view of Mr. Dillman as that of a civil and hydraulic engineer of wide reputation and high standing in the Pacific Coast States, a man of wide construction experience with a record of satisfactory accomplishments on this Coast in the matter of railroad, hydraulic, irrigation works and domestic water supply construction, a man to whom the unit costs of undertaking and completing the various jobs of hydraulic construction have become familiar through many years of actual experience rather than by analysis of work done by others, an engineer who has been primarily familiar with the contractor's end of the work and consequently with the details of construction costs and accomplishments. If Mr. Dillman says a steam shovel will move six hundred yards a day it is because he has done it himself with a steam shovel, not because he heard that some one else did it. I should furthermore characterize Mr. Dillman's point of view as that of a man who is not a professional expert in the ordinarily accepted sense of that word in rate cases, but rather as a point of view of a practical engineer who has been asked to apply the teachings of his experience to the problems before us without reference to the estimates of any other engineer or the records of any other piece of construction, except such work as he happens to be personally familiar with. I should characterize Mr. Dockweiler's point of view as that of a valuation engineer who, with sufficient experience to teach him how

to apply data, has gathered, compiled, arranged in order and presented an analytical valuation of the complainant's properties, reaching his results first by synthetical methods and then comparing them with records of other work which have come to his hand through various sources of information. It is, of course, for your Honor to decide which of these points of view is entitled to the greatest consideration.

It should also be borne in mind that Mr. Hazen states that he has based his entire appraisal on considerations of fair average management, while Mr. Dillman believes that in the construction of works of the magnitude of the Spring Valley works it would be possible to obtain a very high grade of management and emphasizes the importance of this factor in keeping down cost of construction.

Mr. Dillman believes that in the construction of works of the magnitude of the Spring Valley works it would be possible to obtain a very high grade of management, and emphasizes the importance of this factor in keeping down cost of construction, and that most of the great projects had a high grade of management. Certainly no injustice is being done to complainant if a high grade of management is assumed for reproduction. Hazen assumes average management until he comes to his overhead percentages, and then he commences to talk about men comparable to the chief engineer of the New York aqueduct. Experience of the last few years has shown that men of the type of Schussler, Mulholland and O'Shaughnessy can be found when necessary to meet the exigencies of construction.

"MR. GREENE: Is there anything in Mr. Hazen's statement on overhead that he does not consider fair average management as well in the actual construction work?

"MR. SEARLS: I don't think so.

"MR. GREENE: I thought you implied an inconsistency, Mr. Searls, which I do not recall exists.

"MR. SEARLS: 'Fair average management' is an ambiguous term. I had in mind, at the start of the case, that it was his point of view that only ordinary engineers should be

employed to superintend a job of this sort, and that his unit costs had been built up upon that presumption, but that when he came to discuss his overhead percentages he concluded that a very high grade of management would have to be employed."

III. STRUCTURAL PROPERTIES.

I come now to a consideration of the company's structural properties and will attempt to discuss each of the more important classes of construction by itself in the order in which they were presented on the trial. Taken as a whole, we have no quarrel with Mr. Hazen's statement that the Spring Valley water works have been well built, of good material and with excellent workmanship. In figuring the reproduction our witnesses have sought to bear in mind your Honor's instructions given at the commencement of the trial that the identical structure should be reproduced and not a substitutional structure, even though that substitutional structure might render equally adequate service. Perhaps I should except Mr. Dillman's valuation of riveted pipe from this statement, as he frankly admits that was valued on the basis of steel pipe as a substitute. The testimony of all the witnesses in this case has been to the effect that the Spring Valley structures were of an excellent type of construction, and it is therefore with no thought of detracting from value by reason of inefficiency in service that the defendants' witnesses approach this appraisal. The only criticism the city has to make of the Spring Valley's structures is that there are too few of them. We agree with Mr. Hazen that there should be about ten million dollars' worth more, and if the company had only expended that ten million dollars in new construction I venture to say that the water-rate question would have been long ago settled and we would not be here today. I think, also, that in passing it is only fair to extend commendation to Mr. Hazen and to Mr. Metcalf for the excellent way in which they divide the presentation of the structural appraisal. And, even more, I should include your Honor in that commendation.

While the defendants' had planned presentation along differ-

ent lines and the shifting of our appraisal to meet the complainant's revision caused us many hours of hard work, I am satisfied that this method of presenting the appraisal, according to the classification of structures by types rather than by geographical location, has been the only method which enabled us to close the case as soon as we did. Your Honor's idea of taking all the testimony on a given subject before passing to the next one has also helped materially to keep the record in a readable form.

1. Riveted Pipe.

Comparison of Figures.—The first class of structures considered was riveted wrought-iron pipe. The witnesses testifying as to the value of these pipe were Mr. Hazen for the complainant and Messrs. Dillman, Dockweiler and Dorward for the defendant, with partial testimony by Mr. Moebus and Mr. Rhodes.

This subject seems to have been Mr. Hazen's forte, and it is easy to see why he chose to present his testimony on this topic first. It hardly befits a layman to criticise Mr. Hazen's eulogy on wrought-iron pipe as compared with steel pipe for water conduit purposes except to note that where he compares the record performances of the two metals in use (p. 4317) he uses steel as it was fabricated many years ago under processes admittedly inferior to those which are now used, and the results perhaps do not do justice to the steel pipe we have today. The fact that, as Mr. Hazen says, steel pipe has very largely replaced wrought-iron pipe in practically all the water-works construction in the country seems to justify a conclusion that pipe constructed of steel as it is manufactured today is probably as satisfactory and certainly much cheaper than wrought-iron. As Mr. Hazen is appraising wrought-iron pipe, however, I need not consider this factor any further than to say it certainly does not add to the value of the pipes which the company has because a purchaser would certainly figure on the alternative cost of steel. In fact the company has used steel pipe itself in laying the new supply

mains across Golden Gate Park in 1915, and I believe also on the Pleasanton line.

MR. GREENE—Half of it was the old Pilarcitos pipe, Mr. Searls, and my recollection is that that was riveted pipe of an inferior grade.

MR. SEARLS—The principal differences between the witnesses as to the cost of reproducing the wrought-iron pipe arises out of the fact that Mr. Dillman has figured his appraisal on alternative steel costs and Mr. Hazen differs from all of our witnesses on the cost of fabrication and laying and trenching and auxiliaries. For the purpose of showing your Honor these differences I have prepared a table, which I will call Table 1, showing the inventoried costs of the three main pipe lines of the Spring Valley Water Company as appraised by Hazen and Ellis, the latter having used Dorward's prices on pipe. This table is an exact copy of one used by Mr. Greene in his argument, except that Mr. Dorward's figures as used by Mr. Ellis in Exhibit 214 have been added. From the fact that the metal of the pipe line was agreed upon and that the weight of the pipe per foot is perfectly in accord it will not be necessary in discussing the pipe costs to refer to these items in any detail; your Honor will recall that Mr. Ellis accepted Mr. Hazen's weights in making up the final statement.

MR. GREENE—May I ask you whether the figures of Mr. Dorward include any profit allowance?

MR. SEARLS—They include a 15% allowance for profit. The auxiliaries included in there are Mr. Dockweiler's figures because Mr. Dorward did not figure on the cost of auxiliaries.

a. Hazen on Pipe.

Mr. Hazen determined the cost of pipe, as shown by his inventory, by concluding that in his judgment the cost of steel pipe, with the plates 3-4 of an inch thick, would be 5.7 cents per pound. Using this as a basis in connection with an empirical formula, derived from what he terms his "schedule of October 30, 1912," prices per pound for steel pipe of different thicknesses of plate, he arrived at his prices for wrought-iron pipe as follows:

(4332) * * * "A. Substituting wrought iron plates at 4

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TABLE 1.

COMPARISON OF BASIC COST ESTIMATES UPON RIVETED PIPE LINES OUTSIDE OF CITY AS OF DEC. 31, 1913

(Abstract from Major Group Analysis which was based upon individual Inventoried Values.)

Structures.	HAZEN			DOCKWEILER				DILLMAN				ELLIS-DORWARD			
	Pipe with Excav.	Misc.	Total.	Pipe	Excav.	Misc.	Total	Pipe	Excav.	Misc.	Total	Pipe	Excav.	Misc.	Total
25 Pilarotos Aque.....	\$ 7,050	\$ 1,100	\$ 8,150	\$ 5,292	\$ 767	\$ 1,031	\$ 7,090	\$ 6,451	Incl. in Pipe	\$ 6,451	\$ 4,964	\$ 740	\$ 124	\$ 5,828	
27 " Aque. Siphon.....	3,800	200	4,000	2,485	471	252	3,208	2,723	" " "	2,723	2,776	287	266	3,329	
29 " " ".....	13,300	500	13,800	9,371	985	340	10,696	8,688	" " "	8,688	9,771	1,041	344	11,156	
31 " " ".....	6,700	250	6,950	4,371	494	4,930	9,795	4,325	\$ 5,852	10,177	4,883	522	4,933	10,338	
26 Stone D. Aqueduct.....	20,800		20,800	10,861	2,550	484	13,895	19,253	Incl. in Pipe	19,253	14,341	2,100	492	16,933	
11 San Andreas Ser. Tank.....	353,228	28,953	382,181	235,952	28,313	16,795	281,060	255,919	19,939	17,387	293,245	266,220	27,914	16,794	310,928
17 San Andreas.....	207,064	3,126	210,190	112,292	19,617	6,103	138,012	129,415		5,624	135,039	139,768	25,430	6,002	171,200
20 Conduit to O. V. Pumps.....	178,536	9,680	188,216	81,064	14,448	11,184	106,696	123,602		14,016	137,618	132,666	18,729	13,692	165,087
27 San Andreas, Old Force-Main.....	12,886	689	13,575					10,340	Incl. in Pipe		10,340	10,431		830	11,261
1 Crystal Spgs. P. Line.....	414,329	31,179	445,508	259,354	39,535	22,825	321,714	328,745		13,754	342,499	292,106	39,535	22,368	354,009
4 Crystal Spgs. Mill. to Univ. Md.....	469,886	32,376	502,262	300,152	42,456	51,531	394,139	348,418	30,326	34,812	413,556	336,881	42,456	33,812	413,149
8 Niles Aqueduct.....	48,255	1,076	49,331	26,933	3,741	3,467	34,141	30,580		1,845	32,425	37,874	4,364	1,541	43,782
25 Pleasanton Well System & Sunol Line..	84,722	3,230	87,952	77,268	23,802	6,538	107,608	87,680		6,096	93,776	71,300	24,502	6,737	102,539
4 Alameda Pipe Line.....	446,648	72,379	519,027	275,556	9,035	83,379	387,970	259,862	20,199	79,783	359,844	341,344	30,561	77,019	448,924
24 " " ".....	404,512	9,721	414,234	243,791	37,277	19,656	300,724	229,742	27,410	13,432	270,584	307,235	38,373	14,203	359,811
34 " " ".....	526,565	20,318	546,883	326,943	50,763	19,546	397,252	400,761		14,300	415,061	412,551	52,256	8,611	473,418
Totals	\$3,198,282	\$214,777	\$3,413,059	\$1,971,685	\$294,254	\$248,061	\$2,514,000	\$2,218,302	\$97,874	\$206,901	\$2,551,279	\$2,385,111	\$308,810	\$207,771	\$2,901,692
(Incomplete but incl. in pipe.)															

SUMMARY OF ESTIMATES ON RIVETED PIPE OUTSIDE OF CITY.

	Allen Hazen	J. H. Dockweiler	G. L. Dillman	Ellis-Dorward
Riveted Pipe, furnished and laid	\$3,198,282	\$1,971,685	\$2,246,504	\$2,385,111
Excavation		294,254	97,874	308,810
Miscellaneous	214,777	248,061	206,901	207,771
Totals	\$3,413,059	\$2,514,000	\$2,551,279	\$2,901,692

Hazen's segregation of Miscellaneous is somewhat different from the others, as he includes some of their items in the pipe costs. Dillman's segregation of items is incomplete, the total excavation corresponding to his four items is 199,006 cu. yds.

cents a pound for the steel, I came to the conclusion that the cost of the completed work in cents per pound, on the nominal weight of the pipe away—that is, I mean the weight of the steel pipe dipped, not the weight of the metal only, 3-8 plates would be 7.4 cents per pound; 5-16 plates would be 7.7 cents per pound; 0.275 plate would be 8 cents per pound; 1-4 inch plate would be 8.1 cents per pound; No. 6 plate would be 8½ cents per pound; No. 7 plates would be 8.6 cents per pound; No. 9 plates would be 9.1 cents per pound; No. 10 plates would be 9.3 cents per pound; No. 11 plates would be 9½ cents per pound; No. 12 plates would be 9.8 cents per pound. Now if you will find the weight of each length of pipe in the schedule by the rule that is given in the American Civil Engineers' pocketbook, which is W equals 12.5 d. t. plus 10, and then multiply the weight by these prices per pound you will get the prices that are written in my schedule. The prices include not only the pipe laid, but the ordinary excavation, the gates, air-valves, blow-off, ordinary obstacles and difficulties along the line."

THE MASTER: In this table, the first column of Mr. Hazen's includes excavation; I see no separate column for excavation here.

MR. SEARLS: As I understand it, that is the completed cost. That is a copy of the table Mr. Greene used.

THE MASTER: Mr. Greene, you said in the course of your argument that there was a difference of \$60,000 on the question of excavation?

MR. GREENE: That is my recollection, your Honor.

MR. SEARLS: I will develop the reasons for this large difference, your Honor, as I go on.

THE MASTER: Very well. It is not disclosed on this table because apparently an excavation figure is included in the column headed pipe.

MR. GREENE: The great difference is in the cost of fabrication and in miscellaneous and auxiliaries.

MR. ELLIS: In Mr. Hazen's schedule he did not differentiate between the cost of pipe and the excavation. The schedule proper gave the cost per foot which included excavation and everything. This table was compiled from the schedule.

THE MASTER: With respect to miscellaneous, which I presume includes auxiliaries, the Ellis-Dorward figure is \$207,000, and the Hazen figure is \$214,000, a difference of \$7,000. That is not worth worrying about. Mr. Dillman is practically identical with Mr. Ellis.

MR. GREENE: It is a little difficult, your Honor, to compare those because I notice under Mr. Hazen there is an excavation miscellaneous claim.

THE MASTER: That was the purport of my first question. I will insert the word "with" between pipe and excavation. I take it that the excavation is in the first column with the pipe figures.

MR. GREENE: Mr. Sharon says that that is correct. Our table that we introduced showed the actual differences as I recall it between the two.

MR. SEARLS: This is an exact copy of Mr. Greene's table except for the last column which has the figures of Mr. Ellis and Mr. Dorward. We did not change any of the other figures.

THE MASTER: You may proceed, Mr. Searls.

MR. SEARLS: Mr. Hazen admits, on page 4527 of the transcript, that his formula is not universally followed in the Eastern states and so far as the record goes there is no reason to think that it applies to all the western jobs to which he has referred. Any error in this application would be reflected in the estimated weight of the pipe and would correspondingly affect the unit result obtained by dividing the total cost of these pipes by the estimated weight. It might well be that 9.4% which Mr. Hazen adds to the unit fabrication cost he derives from his formula and eastern contracts (Exhibit 98-J, p. 15), should be deducted from one or more of these contracts to meet actual conditions in that case. If, as he says on his cross-examination (4533), Spring Valley pipe was all bought on actual weight of metal, it would seem that the eastern prices should be reduced on the basis of actual weight of metal in order to make them comparable. Mr. Hazen's third method of arriving at his figure is based entirely on Mr. Lawrence's estimate, and I shall consider that in a discussion of Mr. Lawrence's figures. It would seem that Mr. Hazen is not entirely satisfied himself with

the results obtained by these methods, for on page 4538 of his cross-examination he states that he gave the most weight to his office practice.

I might say at this point, your Honor, that the difficulty which we seem to be faced in practically all Mr. Hazen's testimony is that few of his comparative jobs seem to satisfy him entirely as to their comparability. He must always add or subtract—usually add—a percentage to the cost on these jobs in order to make them conform with his estimate. And, without criticising this method as a basis of original estimate standing wholly on the judgment of the engineer, it seems practically useless when used in a corroborative way for the reason that the job price is of no value at all until Mr. Hazen has applied a percentage to it which nearly makes it check his estimate. If we are going to use comparative jobs as methods for checking estimates it would seem necessary to either accept or reject the figures which we are using. I can conceive of an instance where two jobs might be similar in all but one respect and that the difference in cost would be arithmetically ascertained from an inspection of the contract or of the cost record. In such event it would seem entirely fair to take the cost of the dissimilar operation from one job to make it strictly comparable with another; but where the exact cost of this operation cannot be ascertained I do not think that the use of a percentage arbitrarily selected by the valuator materially aids your Honor in determining whether or not the results attained by his first judgment are correct and those results must stand or fall on the qualifications or reasoning which he uses in reaching them.

For the purpose of checking his inventoried price of pipe Mr. Hazen uses his office schedule of October, 1912, corrected on a basis of the cost of pipe on 15 different contracts, and then uses as a second check the price of Spring Valley Water Company contracts, that is, original costs. He finally determines for "Cost of manufacturing, coating, transporting finished pipe from shop to trench, and connecting up and caulking in trench,

including bands and manholes but not gates on valves, blowoff, anchorages, connection, excavation, etc." 3.75 cents per pound.

He determines "The probable actual cost of Spring Valley pipe main items only" 3.82 cents per pound. He states (p. 4352) that the closeness of the check is a coincidence and he does not attach any significance to it.

The result of the first check gives him \$27,000 more than the amount arrived at in the schedule. I am referring to Mr. Hazen's check estimates as differentiated from his schedule prices, and when I say "check" I mean the estimates he made in his exhibits to derive the unit price of pipe.

If this was so as it appears on the face this would tend to be an excellent check on his figures, but a close analysis of his figures brings out a somewhat different result, and tends to show that his figures in the agreed schedule are somewhat high —by "agreed schedule" I mean the inventory.

Assuming for the moment that the Hazen schedule of October 30, 1912, which gives a base price of 2.80 cents per pound is correct, we have the following:

Schedule of Oct. 30, 1912 to 3-16 inch per pound of	
finished steel pipe	2.80
Actual record of 15 contracts06
20% increase for western conditions.....	.57
If cost is reckoned on the metal in pipe instead of dip..	.32

3.75

Assuming, as I said before, that we will take for the present, the base price of 2.80 per pound, let us pass on and examine the "Actual Record of Contracts." Mr. Hazen himself on cross-examination (p. 4513 and 4514) admits that he has more confidence in his office base than he has in this list of contracts, and if he were revising his office schedule he would not do so on the basis of these contracts. A study of the summary of these contracts shown on page 4, Exhibit 98-J in conjunction

with Mr. Hazen's description of these items shows that at least six of these items should be excluded from consideration.

The second item in Summary of Actual Contracts, pipe sent to Ottawa (page 4496). This pipe was for a rush order made under pressure, shipped on a special train, and paid a duty.

The fifth item was a 9-foot pipe for Los Angeles, only 1032 feet long (page 4500) in Dove Spring Canyon, and Mr. Hazen knew nothing about the details.

The sixth was for 1000 feet of 120-inch pipe on the Los Angeles Aqueduct (pp. 4501-2) and Mr. Hazen did not know much about the details and states (4556), that the cost of building these lines can only be given a limited amount of weight. He also states on page 4558 there was a certain amount of "indirect costs" that should be added—how much he didn't know.

The eighth item is on Los Angeles Aqueduct work and is for 600 feet of 11-foot pipe.

The eleventh item was for a short piece of 80-inch pipe (4510) and was discarded on account of size and length.

The fifteenth item I have excluded because the contractor failed (4512-13) and the work was in excess of the price shown.

The remaining nine items in the line of contracts if totaled give an average of 80 divided by 9, or .09 of cent below the schedule price for the same pipe calculated on the schedule of October 30, 1912.

As Hazen prefers his schedule to the (4513-14) summary of the contracts, it would look as though he was unwarranted in adding, .06 cents per pound to his base price.

While undoubtedly pipe can be made more cheaply in the east than in the west, in view of the testimony 20 per cent. would seem too large a figure to assume for the difference. Mr. Hazen (4514) says that he can give no figures but it is merely his judgment. He also states (4493) that he has never made pipe anywhere and has had no experience with the relevant efficiency of labor between the east and the west.

As against this we have the testimony of Dorward who has

not only had a long experience making pipe in San Francisco, but is also the western agent for one of the largest steel fabricating concerns in the country (4889). And he states that in a general way the eastern and western costs are compared. He states (4922-23) from what he knows about the subject eastern pipe would be 10 to 12 per cent. cheaper than western pipe. Taking a mean and calling the increase of western over Eastern pipe 11 per cent., Mr. Hazen's analysis of 3.75 per pound would be reduced to 3.40 as follows:

I desire to read from page 4922 of the transcript:

"MR. HAZEN: Q. Was the cost greater here, can you tell us, than it is in the east? A. Yes, it is greater; we are probably paying about 10% more wages here and working 10% shorter hours than they are in the east, but deducting from that again the extra amount of work that men can do here, amounting to about 10%, would make the Eastern pipe from 10 to 12% cheaper than it could be manufactured here; but against that you should consider the cost of transporting the finished pipe to the coast against transporting the raw material practically out here; for instance on a car there are certain sized pipes you would get half a carload of, and you would have to pay more than the carload rate, or else you would have to pay for the full car; but altogether, without the figures, I should say that the eastern pipe would be 10% cheaper, 10 to 12% cheaper than the pipe made in California."

I am now going to give Mr. Hazen's schedule reduced on the basis of Mr. Dorward's opinion as to differences in Western costs and eliminating the .06 cents that Mr. Hazen allows on account of these contracts.

Base price on schedule of Oct 30, 1912.....	\$2.80
Actual record of nine contracts.....	—
11 per cent increase for Western conditions.....	.31
If cost is reckoned on losses of metal only in pipe add..	.29
	<hr/>
	\$3.40

We cannot compare this price in detail with Mr. Dorward's estimate because Mr. Hazen refused to segregate the cost of

fabrication from the cost of laying and riveting and he also refused to approve Mr. Ellis's segregation made on the basis of his own testimony saying that he felt there would be some difference in the application of his percentage of increase on Western conditions to one part of the work rather than to another. I cannot criticise Mr. Hazen for refusing to make this segregation except to say that if he had given the subject consideration enough to make it it would have made it very much easier for all of us to compare his figures with those of our own witnesses.

If we now take his form on pages 17 and 18 of Exhibit 98-j, we have the following:

20,731 tons at04	1,657,384
Cost of manufacturing, etc., 20,731 tons		
at 3.40	1,409,708	
Deduct for under riveted.....	24,240	1,385,468
		<hr/>
		3,042,852
Excavation		429,154
		<hr/>
		3,472,006
Gate valves, etc., 10%.....		347,201
		<hr/>
Total		3,819,207

This figure includes the pipe inside the city, that is, riveted pipe inside the city. By his check analysis, pages 17 and 18 of "Exhibit 98-j," he gets \$3,978,835 as compared with the price used in the schedule, \$3,951,531, and the amount by which his check estimate is greater than his schedule estimate is \$27,304. By revising his check estimate in the manner I have just indicated we get a total of \$3,819,207 as against his schedule cost of \$3,951,531, showing that his schedule cost is \$132,324 greater than his check estimate. The difference between the check estimate, as he made it, and his check estimate as revised, is \$159,628, thus showing by the witness' own check analysis and without considering errors in his auxiliary percentages and excavation prices, that the figures he uses in his appraisal are approximately \$160,000 too high.

Auxiliaries.—It is necessary to read Mr. Hazen's testimony carefully in order to separate the original methods of figuring the cost of pipe and what he calls his check analysis. The figures which are shown in his schedule which he uses in making up his appraisal of the Spring Valley pipe lines were not reached by the method he explains in his "Exhibit 98-j." His testimony on pages 4331-3 of the record shows how he reached that. He concludes on the basis of his judgment that steel pipe of a certain weight and thickness would cost so much, including not only the pipe, but also the excavation, gates, bends, blow-offs, air valves, and all ordinary obstacles along the pipe line. Then he concludes that wrought iron pipe would cost something more, based on the difference in the cost of metal, and he gives on page 4332 the different prices per pound he uses for wrought iron pipe, and on page 4333—"those prices include not only the pipe laid, but the ordinary excavation, the gates, air-valves, blow-off, ordinary obstacles and difficulties along the line."

Now that is the way Mr. Hazen reached the figure which he gives in his schedule. There making an analysis along the line which he indicates in "Exhibit 98-j" he came out with a figure which, exclusive of accessories, is some \$388,000 lower than he uses in his schedule. In this difference there is included auxiliaries such as gates, air-valves, blow-offs, ordinary obstacles and difficulties along the line which he had not up to that point taken care of in the schedule.

This difference your Honor will note from the exhibit is \$27,000 in excess of exactly 10 per cent. of the total cost which he derives by his check analysis including excavation and excluding accessories. Concerning this ten per cent., Mr. Hazen has to say (4356): "To that I add, according to my usual practice based on my experience, for gates, air valves, blow-off, bands and lead joints, connections, concrete in trench, contractors' extras, and all ordinary accessories and contingencies, 10% of the above item."

Your Honor will note that this ten per cent. amounts to \$361,000, and that it covers items most of which were specifically enumerated in the inventory. Now if the men who made up this inventory considered it of such importance to enumerate these items separately, it

seems to me that the appraisers should follow that inventory in making their figures. There is a very wide difference between Mr. Hazen and Mr. Dockweiler and Mr. Dillman in this matter of accessories, and it is impossible for your Honor to compare them because Mr. Hazen has failed to place any figure at all upon these items in the inventory, substituting his judgment, as he calls it, for the price as a whole. He coolly adds ten per cent. for these auxiliaries, and supports it by referring to a lot of estimates and Portland data which may or may not be comparable, and to his own experience, which, as he admits, was based on cheaper steel pipe lines.

THE MASTER—Then auxiliaries and miscellaneous would not be the same, referring to Table 1, or is it?

MR. SEARLS—I think it is.

THE MASTER—I think not, but as I pointed out before, the difference is not enough to warrant the discussion.

MR. SEARLS—The ten per cent. in Mr. Hazen's schedule includes all the enumerated items in the schedule.

THE MASTER—What does this mean in this table?

MR. ELLIS—This means special structures along the pipe line.

MR. SEARLS—Some of those structures are, I think all of them were appraised in detail by Mr. Dockweiler. The point I wish to make here is that Mr. Hazen says that this 10% was derived on the basis of his experience with steel pipe lines, and upon the basis of comparative jobs which were all steel, and furthermore, he bases it on the excavation as well. These auxiliaries are for the most part cast iron or brass, or some other metal. If he derived an experience percentage of 10% in constructing steel pipe lines, it certainly is no justification for adding as much as 10% to a more expensive wrought iron pipe line; in other words, the auxiliaries are in no sense a function of the metal. The same thing applies to excavation. I can not conceive under what possible circumstances auxiliaries of this sort would be a function of excavation, which would differ very widely in price and the character of the material in practically every job.

THE MASTER: Have you at some place in your argument

a statement of the different figures of the different witnesses on the matter of auxiliaries?

MR. SEARLS—I was just going to indicate it, Your Honor; I can only do it approximately with the main pipe lines; Mr. Hazen on the smaller pipe lines did not cover them so we could get at it.

Counsel has nowhere taken exception or indicated any weakness in the figures which were used by Mr. Dockweiler and Mr. Dillman to cover these items, all of which were specifically enumerated. I therefore submit to Your Honor that the appraisal placed on these items by our witnesses is the only evidence which specifically covers their valuation.

TABLE 2.

DIFFERENCE BETWEEN HAZEN AND ELLIS ON PIPE LINE AUXILIARIES.

	Hazen	Ellis
San Andreas Pipe Line.....	52113	3490
Crystal Springs Pipe Line.....	81153	9465
Alameda Pipe Line.....	121889	14481
	<hr/>	<hr/>
	255155	27436

Mr. Ellis used J. H. Dockweiler's figures on valves, etc.

Referring to Table 2, Your Honor will note that these items for the three main pipe lines as figured by Mr. Dockweiler give a total of about \$27,500. The auxiliaries on the shorter pipe lines would account for some of the difference between that sum and Mr. Hazen's figure, but only a small portion. Or, taking the comparison another way: for the three main pipe lines which are included in this table, Mr. Hazen's figure for auxiliaries amounted to \$255,000, as against Dockweiler's \$27,500.

The difference is all out of proportion, and clearly indicates that Mr. Hazen's figures in terms of percentage is very much too high. Inasmuch as these items are included in the stipulated inventory, it seems clear that he has no right to use a percentage based upon experience in other cities where the items which go to make it up may very well be radically different from those involved in the Spring Valley pipe line. Furthermore there seems to be no logical

basis for assuming that such a percentage can be a function of excavation, considering that auxiliaries have nothing whatever to do with excavation or trenching. If I were to make a supposition as to the way that Mr. Hazen got that percentage, I would say that he found that it would check his original appraisal if he had subtracted from the total figure obtained in his original appraisal the total figures derived from his check analysis, and while I don't accuse him of deliberately making up the difference in that way, I think he very probably concludes that his original appraisal was right and this influenced the percentage which he used.

b. Dockweiler on Pipe.

I pass now to Mr. Dockweiler's testimony, leaving the question of excavation to be treated later with reference to the testimony of all the witnesses.

Mr. Dockweiler's estimate of the cost of fabrication and laying has been derived by carefully computed cost of each operation from the purchasing of the pipes down to the backfilling of the trenches. He and Mr. Hazen agree on the cost of wrought-iron plate and on the cost of dipping. Their figures are only 4 cents a cubic yard apart on the base cost of excavation, leaving the cost of fabricating and laying and auxiliaries as the principal item of difference. The method by which Mr. Dockweiler reaches his cost of fabrication and laying is set forth in Exhibits 100, 100-a, 100-b, 100-j and 100-jj. I need not refer in detail to these exhibits here; the headings of each column show the operations described and the amount which the witness credits to that operation. His figures were originally obtained by detailed calculation of the cost of the different operations, and he offers in support of his final results the quotations of various pipe manufacturers on this coast, including such reputable firms as Western Pipe & Steel Co. (Exhibit 100-c), Schaw-Batcher Co. (Exhibit 100-d), who fabricated the pipe for the Spring Valley Water Co. recently laid in Golden Gate Park, Lacey Co., Los Angeles, (Exhibit 100-f), who fabricated some of the pipe for the aqueduct, Baker Iron Works (Exhibit 100-h), Los Angeles; also records of purchases of riveted steel

pipe by the Los Angeles City Water Co. (Exhibit 100-i), bids received by the City of Sacramento for riveted steel pipe (Exhibit 100-l), cost of laying the 24-inch steel pipe line from San Pablo Creek to University Avenue in Berkeley (Exhibit 100-m), and in addition has his testimony as to cost of fabrication corroborated by the testimony of the witness C. I. Rhodes (Exhibit 102, who had been inspector for the Monterey Water Co. during the manufacture of the 22-inch steel pipe for the works at Montague & Co. in San Francisco, and the witness Moebus, who had been general superintendent for Francis Smith & Co., a firm which had previously manufactured pipe for the Spring Valley Water Co. Moreover, Mr. Dillman says that preliminary prices furnished estimators as a rule, according to his experience, are materially cut when it comes to actually bidding on the job.

Mr. Dockweiler's testimony, as well as the testimony of those corroborating witnesses, was criticised by Mr. Hazen on the grounds that the pipe fabricated might not have been up to Spring Valley specifications. The record shows that the specifications of the Sacramento shop were submitted to the complainant at the trial of the case and on cross-examination by Mr. McCutchen, p. 4813 of the record, Mr. Dockweiler testifies that specifications are rigid and that he considers them to be in the line of Spring Valley requirements for good work. On page 4816 Mr. Hazen speculates as to what might be the trouble with this pipe, but he shows clearly that he does not know anything about the job and it is merely a gratuitous attempt on his part to detract from Mr. Dockweiler's testimony without showing any specific errors. The same comment applies to the Lacey Company's bid on the San Diego job just referred to. It is also worth noting that all of these bids are at figures lower than that estimated by Mr. Dockweiler, showing that he has some margin to cover cost of more onerous specifications.

MR. GREENE—Those were all steel pipes, weren't they, Mr. Searls?

MR. SEARLS—Yes.

MR. GREENE—None of them were riveted pipe?

MR. SEARLS—I think it was the cost of fabricating that the bids referred to and not the metal.

MR. GREENE—I thought it covered the whole job.

c. Dorward on Pipe.

MR. SEARLS—Now I wish to refer to the testimony of Mr. Dorward, on the estimated cost of fabrication. For the purposes of this discussion, I think Mr. Dorward's qualifications as manager of the Risdon Iron Works during the time in which that company was constructing a great deal of the Spring Valley Water Co. pipe entitles his testimony to serious consideration. The results he attains are somewhat higher than Mr. Dockweiler's, but taken in the aggregate they come far from checking Mr. Hazen's, as counsel would have had us believe during the trial. Exhibits 103 and 104 show computations made by this witness on riveted pipe, and Exhibit 214 by Mr. Ellis shows the application of Mr. Dorward's figures to the inventory quantities. Mr. Dorward's method had been to take his original notes as to the cost of fabricating his pipe and expand his unit costs thus derived on the basis of the increase in wages and shorter hours. I may note here that Mr. Dorward makes a direct resolution on the basis of wages and hours, but, as Mr. Ellis elsewhere suggests, this is not necessarily inconsistent with Mr. Ellis's testimony as to his own experience. All the labor employed in pipe factories is skilled labor, and the effect of union rules with restriction of output of any factory within the limits of the city of San Francisco may well be such as to require the resolution to be made on a direct basis without any allowance for increased efficiency. On the trial of the case counsel sought to make a great deal of capital out of the fact that Mr. Dorward originally omitted the contractor's profit from his unit costs, testifying in an off-hand manner that it might come out at 30 or 35 per cent, and later (record, pp. 5952 et seq.) after having examined the principal pipe-laying jobs actually completed by the Risdon Iron Works changes his testimony as to the percentage of profit from 35% to 15% for the years in controversy. It does not seem to me fair to impeach such a cor-

rection honestly made by a witness after a careful investigation of the facts. Counsel attempts to show that if the Iron Works did not make a profit on material they would charge the entire profit to labor so as to get the same amount of money in bulk under any circumstances. But there is certainly no admission in the record of Mr. Dorward which justifies any such conclusion, and in fact his testimony as to profit on the Arizona job, which was undertaken in 1908 by the Risdon Iron Works, gives a profit of only 15% on labor alone. And in view of the fact that he has allowed in his estimate 50% overhead on labor, an amount which is far in excess of that reported by Mr. Moebus on the report of his experience with the Francis Smith Co., it would seem clear that an allowance of 15% for contractor's profit was more than sufficient.

Counsel on argument has sought to show that Mr. Dorward has indicated that an additional allowance of 10 per cent. should be made for overhead on material delivered by the company at the Risdon Iron Works. The testimony of the witness, however, does not sustain this contention. I refer your Honor to page 4901.

"THE MASTER—Then, Mr. Dorward, in these figures that are contained in this table there is no addition of the 50%?

"A. Yes, 50% is in the costs that I made up. I took the actual wages paid at that time and added 50% to the wages only.

"MR. McCUTCHEN—Q. Not to the material?

"A. No. we usually used to add to the material we bought; to the material that was brought into the works we added 10% for handling and odds and ends, but the labor was taken at the payroll rate plus 50%.

"MR. SEARLS—The material was furnished by the Spring Valley?

"A. In this case it was. Most all the Spring Valley pipe was furnished by them, so that that 10% would not be applicable to the Spring Valley.

"MR. McCUTCHEN—Q. That is to say, when you bought the material and fabricated it (4902) you charged 10% on the cost of the material and 50% on your labor costs, did you?

"A. That is if we bought the material, yes.

"Q. If you did not buy the material—

"A. —We did not add anything to it.

"Q. You did not add anything except the 50%. Was there anything added for profit after that?

"A. Yes, quite a profit—quite a big profit was added.

"Q. In cases where you purchased the material and added 10% you figured your profits, did you, on the material as well as on the labor?

"A. If we bought the material we added 10% and called that cost; the labor, the pay-roll labor, with the 50% added was the labor cost; to that, the sum of those two was added a certain percentage for profit."

Your Honor will bear in mind that this witness did not estimate the cost of the plates in figuring his reproduction costs. Mr. Dorward used his original cost figures and simply expanded them on the basis of the increase in labor cost.

Now, Mr. Dorward did not figure the price of the plates at all in his reproduction theory; he merely figured the cost of fabricating, laying, riveting and caulking.

Mr. Ellis, in his Exhibit 214, in adapting Mr. Dorward's figures to the appraisal of the Spring Valley system, made the assumption—and I submit that the assumption is entirely reasonable—that if the company could buy plates delivered f. o. b. San Francisco at 4 cents; that on Mr. Dorward's estimate they could be made up, transported, laid, riveted and caulked for the figure that Mr. Dorward used, and that there would be no additional overhead percentages. The cost of the Spring Valley pipe represents a general overhead. It is included in the agreed percentages used by our witnesses as a sort of engineering charge. I don't know what Mr. Hazen's 4 cents means; but so far as the 4 cents per pound used by our witnesses is concerned, we certainly contend that there is no overhead percentage to be added on this material, but that 4 cents per pound represents the entire cost to the company of the material and the price to which only the fabricating and laying costs are to be added.

I am perfectly aware that Mr. Dorward's testimony and Mr. Dockweiler's testimony as to the cost of riveted pipe cannot be

reconciled. The principal difference probably comes in the question of shop costs. Mr. Dockweiler's amount is ample, in view of Mr. Rhodes' and Mr. Moebus's testimony, and I shall not attempt to decide between the two witnesses or to suggest to your Honor any means of reconciling their testimony, except that Mr. Dockweiler has proceeded on the assumption that the pipe could be built in factories outside the City of San Francisco and hence not subject to such rigid union jurisdiction, as Mr. Dorward assumes in his estimate; Mr. Dorward's estimate being based upon the assumption that the pipe would be built in factories inside the City of San Francisco in a plant similar to the Risdon Iron Works.

This much does seem clear to me, however; that Mr. Dorward's figures are clearly the maximum figures that your Honor should consider. Mr. Hazen has consistently refused to make any analysis of his costs which would enable us to compare them with those of any other witness, but he has refused to accept the analysis which Mr. Ellis made for him. His figures must stand or fall on his estimate that it costs 20% more to do work in San Francisco than in the East, although Mr. Dorward says 10% to 12%, and upon Mr. Hazen's statement (record, p. 4493) that he has never had any experience with pipe works in San Francisco so as to know relative prices of labor in the West and the East, that he has never made pipe anywhere, that he has no record of shop costs. On this showing it would seem that Mr. Dorward's testimony as to the cost of fabrication is certainly entitled to much greater weight than Mr. Hazen's. A man who has spent his life in pipe factories in San Francisco knows the cost of operating, fabricating and the overhead costs peculiar to this community, and has represented Eastern factories (4889), and is certainly better qualified to testify as to the cost of making pipe than a man who derives his knowledge from occasional visits to pipe factories in the East, reports of his inspectors and contract prices which may or may not be applicable to Western conditions. Possibly the same distinction applies as between Mr. Dorward and Mr. Dockweiler,

except that Mr. Dockweiler's observations have at least been gathered in and about San Francisco territory and he is familiar with local conditions and is further corroborated, of course, by the witnesses Rhodes and Moebus.

d. Dillman on Pipe.

So far as Mr. Dillman's figures on pipe are concerned they are the only testimony in the record as to the cost of equivalent steel lines, and if your Honor should find that the Spring Valley pipes should have no greater value than that of pipes which will do equivalent work Mr. Dillman's testimony furnishes a proper basis for valuation. Personally, I am inclined to be consistent and adhere to a valuation of the identical structures throughout the appraisal, which, of course, would eliminate Mr. Dillman's appraisal on the riveted pipe. It does seem to me, however, that these considerations of substitutional value justify a conservative rather than a top-notch figure on the wrought-iron pipe. It is by no means certain that in a sale of the properties the company could obtain from a purchaser any more than the value of substitutional steel lines.

e. Lawrence on Pipe.

As Mr. Hazen has relied extensively upon Mr. Lawrence's records in the matter of excavation and the complainants have sought to expand the original cost of these pipe lines through Mr. Lawrence's exhibit to meet 1913 conditions of wages, I shall refer briefly at this point to Mr. Lawrence's exhibit 99 and the testimony in connection therewith before taking up the testimony of the defendant's witnesses.

f. Wages and Hours.

The principal objection which we have to make to all of Mr. Lawrence's estimates of expanded costs is that they are based on insufficient knowledge of actual working conditions on large jobs. Mr. Lawrence has taken the data which he has as to the number of days which were worked, which were practically all

ten-hour days, has arbitrarily reduced them to an eight-hour basis for all classes of labor and has substituted for the original labor costs the present union wage scale on the assumption that that would be paid in building the system today even though the common labor is not organized to any extent nor do union men habitually stick to the eight-hour day on out-of-town construction. He similarly incorporates the current price for hiring single teams in San Mateo County for a day's work. The Spring Valley Co. has not undertaken any big construction of late years which has been under Mr. Lawrence's jurisdiction, and he justifies his assumption of wages and hours for construction by showing that he has at intervals paid such wages and worked such hours with a small maintenance crew. He ignores the fact that the Spring Valley Water Co. has within the past three or four years been working men for ten hours on all its Calaveras construction; that they worked ten hours a day in laying the Pleasanton pipe line in 1909; and the scale of wages paid on both these jobs was smaller than that which Mr. Lawrence used. Mr. Ellis, who has had wide experience in construction camps, testifies (record, p. 4887) that he was working crews in the northern end of San Mateo County in 1908 paying from \$2 to \$2.25 for nine hours for common labor, and his average work was 23 cents an hour. He does not believe that there would be any difficulty in working men in construction camps from nine to ten hours. And finally he objects most strenuously to a direct resolution between the ten and eight-hour day by increasing the cost on a pro rata reduction of output. He states (record, p. 5258) that it has been his invariable experience that for common labor, at least in and around contracting camps, a greater relative efficiency and output is gotten in using the eight or nine-hour day instead of the ten-hour day. Elsewhere he suggests that a 12% increase would be more nearly consonant with the facts than 25%.

In this connection, counsel has very severely criticised Mr. Ellis for making his resolution between ten hours and eight hours of labor on something different than a straight percentage basis.

In the first place I submit that Mr. Ellis' experience, more

than that of any other man who has testified in this case, entitles his opinion on this subject to the greatest weight. He has worked common laborers for 10 hours, for nine hours, and for eight hours, and has been in direct supervision of their labor, and is in a position accurately to know their results. We do not need to rest entirely on Mr. Ellis' testimony, for he is corroborated, in part, by Mr. Elliott. When Mr. Elliott was testifying with regard to the company's concrete in the city reservoirs he made some resolutions between the price of \$7.00 a cubic yard for concrete in place at Calaveras and the equivalent cost in San Francisco, and, incidentally, with auxiliary expense added in on a 10-hour basis, his cost at Calaveras was but \$8.19 per cubic yard. I asked him, (7356)

"Q. Do you make a resolution from 10 hours to 9 hours and 8 hours on a direct percentage basis?

"A. I did in this case, not that I thought it ought to apply absolutely by any means, but it came out about \$10.30 a yard for 8 hours and concrete labor was \$4, such as you have to pay in San Francisco. I don't think that is a fair way to do it exactly. I think the difference between 10 hours and 8 hours is not a direct ratio except where machinery is used and you have to keep pace with machinery.

"Q. Did you ever figure out what ratio would obtain?

"A. No. I never have."

Now, Mr. Elliott has also been in direct charge of men at work in the field, and he realizes that the resolution between 10 hours and 8 hours should not be made upon a direct percentage, although he has never studied the subject sufficiently to give us an exact estimate. I am thoroughly satisfied to place Mr. Ellis' testimony, corroborated to the extent I have indicated, by Mr. Elliott's testimony, against all the theories of Mr. Metcalf and Mr. Hazen as to what municipal employees in Boston have done, or any other tabulated Eastern results.

Mr. Dorward's statement, with regard to skilled labor employed in pipe factories, does not in the least conflict with Mr. Ellis's conclusions as to the results obtained in the field with unskilled

labor such as is employed in handling earthwork, and mixing and placing concrete.

g. Pipe Excavation.

The difference between Mr. Hazen's figures for excavation for riveted pipe and those of the city's witnesses is not so large as to warrant extensive discussion. Mr. Hazen has taken 75 cents as against the 71 cents assumed by Mr. Dockweiler, 65 cents by Mr. Ellis, and 50 cents by Mr. Dillman for ordinary excavation.

Mr. Hazen states (page 4563) that his 75 cents a yard excavation cost is just his own opinion as to the cost of excavating and backfilling, based on his experience in trench work, although in the next sentence he admits that he has never had any experience in trench work on the Pacific Coast and does not know what the exact difference in cost between the two localities would be, owing to the fact that even if labor costs are higher in California, climatic conditions are more favorable than in the East and would to some extent offset the higher labor cost.

On page 4395, relative to excavating for the Portland Bull Run Pipe Line, he admits that he got his unit costs by dividing the total cost by his estimate of the yardage excavated. In commenting on that line, Mr. Dillman testifies (page 4509) that the Bull Run Line must have been a very costly one to trench because it ran through heavy timber, necessitating much grubbing of roots. He knows this because he himself had the original contract for clearing the right-of-way.

The only other information Mr. Hazen reports as to trenching costs is based on Mr. Lawrence's statement as to Spring Valley costs, with which I shall deal presently.

In view of the very extensive experience in excavation work to which Mr. Ellis has testified throughout the case, and in view of the numerous trench excavation jobs which Mr. Dillman reports as part of his personal experience and justifying his figures, to which I shall also refer, there clearly seems no justification for disputing Mr. Ellis' prices of 65 cents to 70 cents for pipe trenching.

The results which Mr. Hazen derives from Mr. Lawrence's figures are not obtained by dividing his total cost by the known yardage, but by Mr. Hazen's estimate of what the yardage may or may not have been. Results obtained in this way are bound to be unsatisfactory. We expected to agree upon theoretical quantities for excavation in preparing the inventory in this case; but we have no means of knowing how they check—if at all—with the original quantities excavated.

I should observe also in passing that there is a wide discrepancy between Mr. Hazen and Mr. Dillman in the matter of weights of pipe; but as Mr. Dockweiler and Mr. Hazen practically agree, and Mr. Ellis has used Mr. Hazen's figures in computing the total cost on Mr. Dorward's units (page 10,855), I am inclined to concede the correctness of the figures which Mr. Hazen and Mr. Dockweiler use on this subject.

This concludes my discussion of the cost of reproducing the company's riveted pipe system.

2. Earth Dams.

Comparative Figures.—There seems to have been a very wide divergence between the plaintiff's and the defendant's witnesses with respect to the cost of reproducing the earth dams owned by the Spring Valley Water Co., principal of which are, of course, the Pilarcitos and San Andreas dams. These structures were appraised either in whole or in part by the witnesses Hazen, Herrmann, Dockweiler, Dillman, Ellis and Martin. The following schedule (Table 3) shows the principal differences in unit prices. I will discuss the various elements of construction briefly.

TABLE 3.

COMPARATIVE UNIT COST ON EARTH DAMS.

Item	Material	Quantity	Unit	Hazen	Herrmann	Martin	Dock- weiler	Dillman	Ellis
Pilarcitos Dam & Aqueduct Pilarcitos Dam	Clearing Reservoir Site.....	125	Acres	60.00	67.50		40.00	50.00	
	Excav.—Stripping earth.....	27,127	C. Y.	.50	.47		.28	.25	.35
	Embank.—Earth	336,900	C. Y.	.65	.70	.48 {.52—30000 CY .75—300500 CY	.36	.40	.50
	Trenching—Loose Rock.....	6,400	C. Y.	2.50	3.15		1.67	2.08	
	Puddle	34,302	C. Y.	1.50	1.52		1.67	1.00	
Stone Dam Aqueduct Pilarcitos Stone Dam	Concrete in Puddle Trench...	300	C. Y.	12.00	12.60		7.72	7.50	
	Rip Rap—Loose.....	86,000	Sq. Ft.	.10	.10		.06	.06	
	Benching Old Dam for Addn..	9,773	C. Y.	Omit				.25	
	Clearing	4.	Acres	70.00	150.00		40.00	* 50.00	
	Backfill	30.	C. Y.	Omit	.25		.20	* 10	
Clay Dam	Excav.—Earth	130.	C. Y.	.75	.75		.45	.25	
	Excav.—Solid Rock.....	192.	C. Y.	2.50	2.00		1.65	* 1.00	
	Broken Range Masonry.....	593.5	C. Y.	18.00	18.00		11.00	* 10.00	
	Brick Capping	11.8	M. B. M.	40.00	45.00		31.75	* 25.00	
	Lumber—K. O. P.....	2,505	M. B. M.	40.00	30.00		37.50	* 40.00	
	12" Gate	1.	Each	50.00	100.00		81.00	* 70.00	
	12" C. I. Pipe.....	50.	Lin. Ft.	2.10			1.83	* 2.20	
	RW Surf. Clear.....	6.3	M. B. M.	65.00	63.50				
	Exc.—Top Soil.....	2,450.	C. Y.	2.50	.46		.22	* .25	.35
	Exc.—Trench	471.	C. Y.	2.00	2.50		1.00	* .50	
	Embankment—Earth	7,000.	C. Y.	.65	.70		.40	* .25	.50
	Embankment—Clay Puddle.....	1,200.	C. Y.	1.50	1.50		.48	* .25	.50
San Andreas Dam San Andreas Dam	Excav.—Earth (Spillway).....	310.	C. Y.	.50	.50		.20		
	Concrete (Spillway)	132.8	C. Y.	12.00	15.00		8.00		
	Rough Flume.....	26,738	M. B. M.	53.00	48.00		39.25		
	Tarring and Caulking.....	3,900.	Lin. Ft.	53.00	.015		39.75		
	16" C. I. Gate Valve.....	1.	Each	170.00			190.00		
	16" C. I. Pipe—B. & S.....	153.	Lin. Ft.	3.15	3.00		2.69		
	Exc.—Trench	57.	C. Y.	Omit	.60		.40	* 3.20	.70
	Backfill	57	C. Y.		.20		.20		
	Clearing ½ Res. Site.....	275	Acres	60.00	67.50	.40	40.00	50.00	.35
	Excavation—Stripping Earth...	57,940	C. Y.	.40	.47		.32	.25	
	Trenching	13,538	C. Y.	2.50	3.15		1.45	.90	
	Embanking—in place	469,356	C. Y.	.65	.70	{.52—58000 CY .70—411526 CY	.34	.40	.50
Dam at Old Wasteway-Earth- fill	Puddle	48,056	C. Y.	1.50	1.52		.75	1.00	
	Riprap—loose in place.....	152,200	Sq. Ft.	.10	.15		.06	.06	
	Concrete in Puddle Trench...	2,772	Cu. Yds.	12.00	2.50	Concrete in Pud. Tr.	7.50		
	Trenching	2,559	Cu. Yds.	1.50	2.50		1.30	* .50	.50
	Embanking—in place	2,892	Cu. Yds.	.65	.60		.22	* .40	
	Puddle	2,242	Cu. Yds.	1.50	1.52		.75	* 1.00	

a. Cost of Clearing.

Mr. Hazen figures this at \$60 and \$70, Mr. Herrmann at \$67.50 and \$150, Mr. Dockweiler at \$40 and Mr. Dillman at \$50. Mr. Hazen's figures are as usual based on his Eastern experience where, he states, his average cost was \$50 an acre, which he increases to \$60 for Pacific Coast conditions. He states (p. 5099) that he has no knowledge of the cost of clearing land similar to the land at Pilarcitos and San Andreas in California and also that the character of the growth in the East is not just the same as it is here. He does not state so far as I have been able to ascertain from the record, whether or not his clearing prices include grubbing. Mr. Herrmann uses a figure of \$67.50 as an average between cost of clearing hillside and bottom (p. 4963). He does not assume that the surfaces would have to be grubbed but he compares his prices with the cost of clearing off the base of the levees along the Colorado River where the cost of \$65 an acre included grubbing and with the clearing of the Calaveras-Sunol road, which cost only \$53 per acre, attempting to adjust both these prices on the basis of assumed wage schedules of eight hours for \$2.50. It seems perfectly apparent that no reason exists for saying that the cost of the kind of labor employed in clearing should be any more in San Mateo County than in Alameda County for the years in question. The defendants' witnesses are also corroborated to some extent by the testimony of Mr. Lippincott with respect to the cost of clearing the Crystal Springs dam site; he uses a figure of \$25 per acre, as shown on page 1 of his Exhibit 112.

There is also in the record a statement by Mr. O'Shaughnessy (p. 5101) that the contract for clearing 800 acres in the Hetch Hetchy Valley on a \$3.00 a day charter wage was let for \$35 an acre, although I should note that this statement was made prior to the time at which Mr. O'Shaughnessy was sworn; and in fairness to the complainant I should also state that it has just recently come to my knowledge that the contractor will just about get out whole on that contract.

Mr. Dockweiler's figures of \$40 an acre for clearing are

based on contract figures for clearing work in the neighborhood of Woodside. I think it is obvious that the character of the growth at Pilarcitos and San Andreas would not be any more difficult than that in the neighborhood of Woodside. Mr. Dillman estimates \$50 an acre on the assumption that clearing would be moderately light with no exceptionally big trees (p. 5013), and states (p. 5016-7) that Mexican labor such as Mr. Herrmann used on his Colorado job would be much less efficient working under Southern California conditions than white labor would be at Pilarcitos. In the light of the evidence it would seem that Mr. Dillman's appraisal of \$50 is the maximum which should be allowed. I think I may state also with respect to that Hetch Hetchy job, as long as I have said that the contractor is not going to get out whole, the reason he is not is because he met with a very large number of oak trees, which were not calculated in the original estimate.

b. Stripping Dam Sites.

In the matter of stripping the earth Mr. Hazen has 50 cents, Mr. Herrmann 47 cents, Mr. Dockweiler 28 cents, Mr. Dillman 25 cents, Mr. Ellis 35 cents, and Mr. Martin 52 cents. It seems to me that the extensive experience both Mr. Ellis and Mr. Dillman have had with respect to excavation work entitled their figures to most serious consideration. Mr. Herrmann's figures, based on an elaborate transmutation of the Calaveras costs, do not seem to be otherwise satisfactorily supported. It appears that the stripping in the flat of Calaveras cost $22\frac{1}{4}$ cents a yard. By adding and subtracting power charges, hours, wages, efficiency, etc., Mr. Herrmann builds it up to 47 cents. It seems to me that Mr. Ellis' contract estimates on the whole are more satisfactory.

c. Embankments.

This is the largest single item in the dam construction. Mr. Hazen figures a unit cost of 65 cents, Mr. Herrman 70 cents, Mr. Dockweiler 36 cents, Mr. Dillman 40 cents, Mr. Ellis 50 cents, and Mr. Martin 52 and 70 cents, respectively. Your Honor certainly has a wide range of figures to select from in this event. The law of

averages would point to Mr. Ellis' as being about right and his qualifications and experience in construction of the Tabeaud dam in Amador County together with his extensive experience in handling scraper work of all kinds, taken in conjunction with the fact that he has kept very carefully costs of all his work, seem to lend especial support to his figures. They have the further advantage of being based on scraper work and not involving speculation as to cost and performance work of steam shovels, about which there seems to be considerable dispute between the other witnesses. Mr. Martin, it is true, has had some experience as construction superintendent for the Pacific Gas & Electric Co., but all of his costs, including those that he gave Mr. Elliott, appear to be based upon his own idea of what the work cost him rather than upon any carefully kept record. Reading his testimony convinces me that there is very wide opportunity for error in his estimate of either the yardage that he uses as a divisor in obtaining his unit costs, or in his material and supply bills. The pay rolls appear to have been under his jurisdiction, but he does not seem to have any compiled data upon which to base his conclusions. He does not qualify as an engineer, and Mr. Dockweiler states (p. 7732) that the field costs which Mr. Martin testifies were introduced in the Railroad Commission—in the Antioch Case, I believe it was—do not show any analysis as to how they were made up. While Mr. Martin speaks with a great deal of positiveness, I have been unable to find that his excavation costs have been compiled with sufficient care to entitle them to any particular credence and he does not claim any familiarity at all with cost of work in the vicinity of the Spring Valley properties. He has in effect arbitrarily transposed his Sierra costs, based on shorter working season and more difficult working material, bodily to a country about which he knows nothing. Mr. Ellis, on the other hand, has had extensive experience in excavation work in San Mateo County itself as well as in the Sierras. In connection with this embankment cost I should also draw your Honor's attention to the testimony of Mr. A. P. Noyes (p. 5287) and Exhibits 106, 106-a, and 106-b, who testifies to the cost of constructing the Wild

Horse No. 2 dam at Vallejo with New Era grading machines at a cost of 35 cents (p. 5268) per cubic yard for embankment. Also to a contract price for clearing brush of \$25 per acre on which the contractor lost money as it cost him \$30.78 (p. 5269), but the contractor had included grubbing as well as cutting. While there is some conflict in the testimony as to whether New Era graders could be used for at least part of the work at San Andreas and Pilarcitos, Mr. Dillman's testimony (p. 5294) that the cost of steam shovel work would not exceed grader work by more than 5 cents a yard indicates that his figure of 40 cents a yard is borne out by experience of the city of Vallejo, and the record shows that the daily performance of graders is less than 600 yards (p. 5311), indicating that the cost should not be materially different. Mr. Ellis also testifies that he would expect a saving over the cost of scraper work if steam shovels were used (p. 5235) and gives the contract price on the Tabeau dam as 40 cents a cubic yard (5233) in 1901. The Wild Horse Dam No. 2 was built according to rigid specifications which are set forth in the record and was done by scraper work at a cost 10 cents per yard less than the figure which Mr. Ellis gives. Mr. Ellis states (p. 6020) if the same layers were used for the Pilarcitos and San Andreas embankments as he used at Tabeaud, the price would be increased to 51.5 cents per yard.

At this point I want to read briefly from Mr. Ellis' testimony, because counsel, on the argument, indicated that he had transposed his Tabeaud cost directly to this Spring Valley work. Reading from page 5251:

"MR. McCUTCHEN—Q. Do you know whether at Pilarcitos you would be required to change from place to place?

"A. I imagine so; I imagine probably to possibly the same degree as we did at Tabeaud.

"Q. Do you know whether there would be a good deal of what you contractors call skin work, or what engineers call skin work at Pilarcitos and San Andreas?

"A. Clearing the top of the borrow pits, do you mean?

"Q. That isn't my understanding of it. What I under-

stand you mean by skin work is that the borrow pits are very shallow, and that you just skin or skim off the top.

"A. No, I did not anticipate it—at Tabeaud our borrow pits would hold a fair amount of material, I could not say the exact amount; they were of varying size. I imagine that the same condition would apply at Pilarcitos."

Your Honor will recall that Mr. Greene stated that the Tabeaud work was very probably skin work. I think this evidence refutes that statement.

MR. GREENE—I don't think I did, Mr. Searls. I didn't intend to state it if I did, because I had no information to base that on.

MR. SEARLS—Reading further from the testimony:

"Q. When you say of varying size, you mean in square areas, don't you?

"A. Yes.

"Q. But they were deep, all of them, were they not?

"A. The borrow pits would range from 8 to 10 feet deep; some of them might have been slightly deeper, some of them shallower. We confined ourselves as much as possible to the submerged area of the reservoir, in order to get capacity in there. They concentrated the force in there, so as to make it larger.

"Q. Would you expect all of your pits at Pilarcitos to be 8 or 10 feet deep?

"A. No, I did not estimate that way. I estimated from conditions on down through there, and what I had read of Pilarcitos, that the conditions would be pretty much the same as at Tabeaud.

* * *

(5253) "MR. McCUTCHEN—Q. Why did you take 7½% as the contractor's profit?

"A. I took 7½% there, having allowed him stock rent."
(5254)—

I don't know whether that is clear to your Honor or not, but the witness goes on and explains it in this way:

"—in other words, in figuring stock, I figured the stock at \$1 a head, and with the wagons, for instance, wagons I figured at \$1.25 a head, where there are wagons; the \$1 a head included

the cost of rental of stock. If a man is working his own stock, contractors often figure that way, that they will put on work, I have seen it done, in fact I have been on contracts where it was done, they would put in stock at a stock rental basis, the same as they would rent them to an outside person, and then they would charge $7\frac{1}{2}\%$ in lieu of the 10%. On railroad work, we are allowed 10% on our force, what is called force schedule, which is stock at so much a day. You are not allowed, in railroad work, your camp overhead, supervision, or anything of that kind. If you have the scrapers, they pay you for scrapers, and drivers, and stock, and allow you 10% to take care of your field overhead, and whatever profit you figure on. I figured that stock on a force schedule as a matter of convenience, and as easy to compare with other figures; figuring the stock on the force schedule and allowing $7\frac{1}{2}\%$ over it all, it would probably amount to the same thing as if they got 10, or 11 or 12% over all; I don't know just exactly."

That is, when they figure $7\frac{1}{2}\%$ on a force account schedule it amounts to compounding the profit on the rental of stock and, as the witness testified, it would probably amount to a straight percentage of 10 or $12\frac{1}{2}\%$.

And from page 5256:

"MR. McCUTCHEN—Q. Your figures on this work are very largely based on your experience with reference to Tabeaud, are they not?

"A. No, not directly. Only to a certain extent. I figure that this proposition resolves itself into three practical operations, as the main operations, the loading in the wagons, the hauling and taking care of it on the dams. The trapping is purely a plowing and Fresno affair. As to plowing and Fresno work, I have been in contact with and done plowing and Fresno work. It comes up in all your work. That is, I have had it in many different places and many different characters—I can state some of the principal ones if you wish. We have done lots of Fresno work on railroads. I have done Fresno work on track work; I have done Fresno work on the Standard Electric. I have had a wide experience with Fresno work, and my figure on the Fresnos and plowing is based largely on that experience. I forgot to include the

Fresno work on work down South in connection with the highway work.

"In connection with the hauling, which is the second factor, I have had considerable hauling done at different times, and watched the operations of teams on hauling material. It is a matter that comes up a great deal, and it is a matter of considerable consequence. On rolling, spreading and so on, the most of that sort of work is based on road work, but when it came to that element of the computation I allowed in my estimate, I figured the maximum equipment that took care of this in the Tabeaud dam and figured accordingly; in other words, on the road grading, rolling, and harrowing and so on, I figured that you could handle it with the same outfit as was used at Tabeaud for that item of the operations."

With respect to Mr. Ellis' position during the construction of the Tabeaud dam, which counsel described in his argument as a superintendent with an opportunity of inspecting the work, the testimony is as follows: (5223)

"MR. SEARLS—Mr. Ellis, will you state in a brief way your experience with the construction of earth dams?

"A. The earth dam that I had the opportunity to watch rather closely was the Tabeaud Dam in Amador County, a part of the Standard Electric Company's system and now a part of the Pacific Gas & Electric Company's properties.

"Q. When was that dam constructed?

"A. The major portion of the dam was constructed during the season of 1901.

"MR. McCUTCHEN—Q. Was the work which you had the opportunity of observing done by contract?

"A. Yes, sir, it was done by contract.

"Q. And who was the contractor?

"A. E. B. & A. L. Stone.

"MR. SEARLS—Q. What was your position during the construction of that dam?

"A. I was superintendent of construction in the hydraulic department of the Standard Electric Company.

"Q. What were your duties in respect to the dam in question?

"A. On the dam in question, Mr. Bassell, an engineer, was in charge of the construction. The dam was a portion

of the system that came through my department, Mr. Bassell's reports, and so on, passed through my department, and I kept in close touch with the work. I was general superintendent of construction.

"Q. And Mr. Bassell was under you?

"A. Yes, sir.

"THE MASTER—Q. Did you see the work actually in progress?

"A. Oh, yes. The dam was located about a mile and a quarter from our headquarters, and I was on the dam probably an average of two or three times a week throughout all of its construction. I kept (5224) in close touch with the dam. I had to pass the dam both going and coming to get to any other portion of my work.

"MR. SEARLS—Q. Are you familiar with all the items of cost involved in that construction?

"A. I am familiar with the methods of operation in the construction of the dam. As to the actual cost to the contractor—I never examined and never had an opportunity to see his books. The dam was contracted for at a price of 40 cents a cubic yard, measured in the dam.

"Q. And what did that include?

"A. That included the building of the main embankment and the placing of loose rock facing on the water surface and such stripping and cutting as was necessary in carrying up the structure; in other words, he was paid 40 cents a cubic yard, place measure, and had no extra allowance for anything in the line of clearing for the extra rock facing."

It was intimated by counsel for the plaintiff that none of these other dams had to be constructed in as secure a manner as the plaintiff's dam, by reason of their location with respect to the city water supply and San Mateo County towns; I would like to read briefly the testimony with respect to the location of the Tabeaud dam in relation to the town of Jackson, which is the county seat of Amador County. Reading from page 5230:

"Q. It was stated here the other day, Mr. Ellis, that it was imperatively necessary that that dam be absolutely secure on account of its situation with reference to the town of Jackson; is that correct?

"A. Yes, the dam was situated on a tributary of Jackson

Creek, about 8 miles above the town of Jackson; a failure of the dam would have meant the total annihilation of the town of Jackson, or the major portion of the town of Jackson. The reason for exercising considerable care was also the fact that it was an extremely high earthen structure, I think one of the highest in the world at that time; that is, among the first three or four highest dams, having reference to height; her yardage is about the yardage of Pilarcitos, although it is higher."

Again, at page 674 of the argument, counsel draws a comparison between Mr. Ellis's reproduction costs and the actual Calaveras steam shovel costs on embankment. Mr. Ellis suggests that there has been no analysis of the Calaveras Dam costs put into the record at any point, and that we have no way of knowing any of the details, or to tell whether the work was either comparable or executed either with efficiency or otherwise.

It seems to me that that disposes of most of the points that counsel made as justifying, in his opinion, the acceptance of a higher figure than the one Mr. Ellis used in this item.

Mr. Dillman and Mr. Dockweiler, as well as Mr. Hazen and Mr. Herrmann, have based their figures on steam shovel excavation. Mr. Dockweiler's figures are estimated according to his usual method and are based on assumed output of 900 yards a day for a shovel. His figures are based on recorded performance on the lower Franklin Dam, Los Angeles Water Works, and at the Central Reservoir, Oakland. See Exhibit 153. Mr. Elliott contradicts the Los Angeles data and shows relatively a much lower steam shovel performance at Calaveras. Mr. Dillman assumes that a shovel should remove about 600 yards per day as an average. Of course, Mr. Dillman testifies to very extensive steam shovel experience in connection with his railroad work.

It seems rather difficult to determine from the record who is right and who is wrong on the subject of steam shovel performance, particularly from a layman's point of view. But the difference between Mr. Dockweiler's and Mr. Ellis' figures on embankment cost of 14 cents a yard would permit your Honor to adopt the latter figure and materially decrease Mr. Dockweiler's

estimate of performance without exceeding it. Taken as a whole, I submit that Mr. Ellis' estimate is very carefully made, is based on conceded qualifications and experience, and is entitled to very great weight in placing a final figure on this item.

d. Trenching.

On trenching there is quite a wide divergence in figures, although Mr. Dillman's revised figure for lagged trenches of \$2.08 would not in the gross differ very materially from Mr. Hazen's \$2.50. By that I mean the gross amount, after multiplying by the yardage.

e. Puddling.

Puddling is another item as to which there is considerable dispute and very little data to support anyone, as puddle core dams seem to be very rarely constructed. Possibly the difference arises in Mr. Hazen's assumption that practically pure clay would have to be found and used, and Mr. Dillman's assumption that a clay that is more or less earth and rock would be equally if not more satisfactory, provided no vegetable material were taken in with it. Mr. Hazen talks of puddling as a lost art, and from the record it would seem that which figure to use is largely a matter of engineering opinion. I would call your Honor's attention to this fact, however, that the value of the Spring Valley dams does not appear to have been materially enhanced by the insertion of puddle cores, inasmuch as earth dams have been repeatedly built in California giving equally satisfactory results by merely selecting, rolling and compacting the dam material. This seems to have been true of the Tabeaud, Wild Horse No. 2, and the Pacific Gas & Electric Co. dams. Mr. Dockweiler's figures are based on a careful study of the historical construction of these clay puddles and an analytical estimate of reproduction by the same method. I think this entitles them to some consideration.

I shall not discuss the other minor items in the earth-dam construction, believing that the record is sufficiently clear and the amount sufficiently small to enable your Honor to decide the



TABLE NO. 5

UNIT COSTS OF CONCRETE-CRYSTAL SPRINGS DAM

	Segregation	Unit	Hazen		Lippincott		Bechtel		Dockweiler		Dillman		Newman		English	
			Unit	Total	Unit	Total	Unit	Total	Unit	Total	Unit	Total	Unit	Total	Unit	Total
Cement	Cost per Cu. Yd. of Concrete	Bbl.	2.00													
	Cost F.O.B. San Francisco	"			2.10				1.86		1.60		1.40			
	Fgt. to San Mateo	"			.04		* .16		.24		.05		.25			
	Handling	"	.24		.225						.16		.06			
	Hauling to Dam	"			.04								.12			
Total				.97		2.405							.39			
Sand	Cost per Cu. Yd. of Concrete	Ton	.60		.60		.94				.80		.94			
	Cost F.O.B. Niles	"	1.00		.25				.75		.11		.25			
	Fgt. to San Mateo	"			.125				.72		.80		.14			
	Banking at San Mateo	"			.11								.07			
	Hauling to Dam	"											.04			
Total			2.26	1.25		2.085	1.14			1.04		2.46		.90		
Crushed Rock	Cost per C.Y. of Concrete	C.Y.														
	Stripping Quality	"														
	Drilling & Blasting	"														
	Loading into Cars	"														
	Transp. to Crusher	"														
	Crushing	"														
	Banking at Crusher	"														
	Equipment Charges	"														
	Maintenance & Repairs	"														
	Hauling ½ Mile	"														
	Banking at Dam	"														
	Total	"														
Lumber	Cost per C.Y. of Concrete															
	I.O.P.—F.O.B. San Francisco M.B.M.								.85		.15		14.00			
	Fgt. to San Mateo								.07				1.00			
	Unloading at San Mateo								.76				.50			
	Hauling to Dam								1.68		1.04		.50			
	Unloading at Dam												.19			
	Total R.O.F.												17.19			
	For S&S-2E												1.50			
	Total												.01			
													.02			
Miscellaneous Material	Cost per C.Y. of Concrete			3.98						1.68			18.69			
	Nails												.01			
	Water												.02			
Labor	Oil & Waste												.05			
													.08			
													.08			
Field Overhead	Forms												.77			
	Mixing & Placing etc.												.20			
	Maintenance, Labor, Material												1.05			
	Supt. & Eng.												.31			
	Depreciation												.23			
	Road Construction & Maintenance												.06			
	Power												.07			
	Contingencies												.59			
Grand Total				9.00			8.36			6.00		6.90		6.49		

* Road Maintenance Incl.
 ** Items contained in \$1.68 but shown separately for purpose of comparison.

Bechtel Testified on Hauling Costs only

For these 4 items JHD gives

For these 4 items GLD gives the following

"Forms
 Mix, Plac, Inc. Labor Power, Water &
 Equip. Chgs. of Mix. Plant & Mach.
 Equip. Chgs. of Mix. Plant & Mach.
 Profit & Contingencies
 cont. 18% of Dir. chg. of \$5.85

3.06 F.B.M. to C.Y. of Concrete

3.06 F.B.M. to C.Y. of Concrete

English estimated on cost of Mixing and
 placing concrete .32 per C.Y.

Lab. Inst. .06
 " Direct .30
 Lib. Ins. .03
 Equip. .15
 Overhead .07
 Power .02

English gave cost of rock in bins
 and labor of mixing and placing concrete
 Did not figure on material or transportation

questions without argument. All the witnesses seem to have agreed that the upper Crystal Springs dam should be valued as a roadway embankment and not as a dam. I again believe that Mr. Dillman's extensive experience in construction of embankments of this class entitles his figures to serious consideration,

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Hazen, Lippincott, Dockweiler, Dillman, Newman, and in part by witnesses English and Bechtol. Testimony as to the price of cement was also given by the witnesses Gay, Eastman, Ellis and O'Shaughnessy. The schedule of the unit cost of the main items of the structure is as follows:

TABLE 4.
COMPARATIVE COSTS OF CRYSTAL SPRINGS DAM

Item	Material	Quantity	Unit	Hazen		Lippincott		Dockweller		Newman		Dillman	
				Unit	Total	Unit	Total	Unit	Total	Unit	Total	Unit	Total
Lower Crystal Springs Dam	Clearing	1,300	Acres	60.00	78,000	25.00	32,500	40.00	52,000			50.00	65,000
	Excavation, Top Soil.....	11,876	C. Y.	.40	4,748	1.50	17,805	.22	2,611			.25	2,968
	Excavation, Solid Rock.....	25,020	C. Y.	2.00	50,040	2.00	50,040	1.88	47,038			1.00	25,020
	Concrete in place.....	157,200	C. Y.	9.00	1,414,800	8.36	1,314,192	6.00	943,200	6.49		6.90	1,084,680
Howard Cut	Excavation, Top Soil.....	7,730	C. Y.	.40	3,092	.35	2,705	.26	2,010		**	.25	1,933
	Excavation, Loose Rock....	5,277	C. Y.	2.50	13,193	4.00	21,108	2.50	13,193		**	.50	2,639
	Embankment, Clay	20,300	C. Y.	1.50	30,450	1.20	24,360	.80	16,240			1.00	20,300
	Riprap, Grouted	3,780	Sq. Ft.	.20	6,808	.15	5,106	.22	832		**	.18	680
	Riprap, UngROUTED	*34,040	Sq. Ft.	.10	378	.10	378	.09	3,064		**	.06	2,042
	Concrete, Core	5,909	C. Y.	9.00	53,181	8.36	49,399	6.00	35,454	6.49		7.00	41,363

* Note. Hazen and Lippincott used 3780 sq. ft.

** These items in total only in Dillman inventory.

questions without argument. All the witnesses seem to have agreed that the upper Crystal Springs dam should be valued as a roadway embankment and not as a dam. I again believe that Mr. Dillman's extensive experience in construction of embankments of this class entitles his figures to serious consideration, although the amount of depreciation of an existing structure must be largely an element of guess. The San Mateo clay dam is of too small value to warrant extensive discussion here.

3. Concrete.

There has been more wide divergence in the testimony of the witnesses with respect to the unit cost of concrete in the Spring Valley structures than with any other item of the inventory. The concrete may be roughly segregated into two general classes: the masonry in Crystal Springs dam and the masonry in smaller structures. Witnesses for both sides concede that there would be a radical reduction in the unit price in placing the masonry in the huge Crystal Springs dam over that which would be paid for construction of any of the smaller structures. In fact, the differential between the two classes is about \$3, on an average, in most of Mr. Hazen's estimates, and about \$2, on an average, in most of the estimates of the city's witnesses.

a. Crystal Springs Dam.

The cost of reproducing the Crystal Springs dam, so far as the concrete masonry is concerned, was figured by the witnesses Hazen, Lippincott, Dockweiler, Dillman, Newman, and in part by witnesses English and Bechtol. Testimony as to the price of cement was also given by the witnesses Gay, Eastman, Ellis and O'Shaughnessy. The schedule of the unit cost of the main items of the structure is as follows:

Mr. Hazen's figure of \$9, which assumes cost of materials per cubic yard \$5.02, plant equipped and forms \$2, labor of mixing and placing concrete \$1, allowance for management and contractor's profit \$.98; I shall proceed briefly to show the items on which I think the estimate is excessive.

b. Cement Prices.

First, he has assumed the price of cement at \$2 per barrel f. o. b. San Mateo, based on \$2.13 average price paid by the Spring Valley Water Co. for 26,000 barrels purchased from 1909 to 1914, inclusive. Although there was admittedly a cement combine on this Coast, the representative of which testifies that they would not cut the price to anybody for any amount—and I might add, parenthetically, that that is what anybody would expect him to testify—the facts are clearly shown in the testimony adduced at this hearing that every single purchase of cement in any such quantities as would be required for reproducing this dam (200,000 bbls.) has resulted in a cut price. The Southern Pacific Co. obtains it, the State Harbor Commission obtains it, the State Highway Commission obtains it, the City of San Francisco obtains it, and F. Rolandi, contractor for the City of San Francisco, obtained it in building the Geary St. Railroad. (See Exhibit 114.) There is no reason in the world for supposing that the Spring Valley Water Company would not be able to get just as good a price as any of these purchasers for the quantity in question. Mr. Hazen was apparently not informed as to any of these purchases; or, if he was, did not consider them. Mr. Eastman, in his testimony, states (p. 5828) that at the time the company was contemplating the construction of a concrete dam in Calaveras he was informed by the cement people that if he were ready to place an order of sufficient quantity for a dam built entirely of concrete they would give him a quotation at that time. As the company elected to build an earth dam, of course the occasion for the quotation did not arise. But it seems to me that Mr. Eastman's statement of the attitude of the cement people is significant in showing that

they probably would cut the price. Mr. Lippincott uses a price of \$2.10 per barrel f. o. b. San Mateo, which is also based on Spring Valley experience and small purchases in recent years by the city of Los Angeles and Santa Barbara. He admits on his cross-examination (5517) that the city of Los Angeles bought cement during the aqueduct construction period for from \$1.05 to \$1.45 f. o. b. Colton and Mojave, respectively; in fact, as soon as the city threatened them with competition by building its own mill the cement people made haste to reduce their prices. It appears also from his testimony that the Pacific Gas & Electric Co. bought cement for the Spaulding dam construction at \$2.19 per barrel gross, delivered at Smart station, which is far up in the mountains and at a long distance from any of the cement mills, and it does not appear from the record just what price at the mill this figure corresponds to. It is sufficient to say that it would amount to a considerable reduction from the market price of cement and refutes Mr. Gay's testimony that the market price of \$2.29 per barrel gross f. o. b. San Mateo would not be cut. In fact, every one of the complainant's engineers, except Mr. Lippincott, has cut it himself in his valuation; it was only a question of how much it would be cut. We submit that the evidence of the price paid for these large purchases during the past few years shows that the figures used by our witnesses, ranging from Mr. Dillman's \$1.60 and Mr. Newman's \$1.65 to Mr. Dockweiler's \$1.86, which last figure, however, includes warehousing and lost sacks, f. o. b. San Mateo, are sufficient to cover the probable cost of this item, and that Mr. Hazen is probably at least 30c to 35c a yard too high on his estimate for cement alone. Counsel has taken vigorous exception in his argument to the use of Southern Pacific prices by Mr. Newman in his estimate; I call your Honor's attention to the testimony which counsel read from Mr. Newman, which shows that the Southern Pacific prices which were based on the Utah mills, and also one of the Santa Cruz mills, where competition did result in getting a much lower price, was excluded from consideration in his valuation, because he did not think that those prices would be fair.

c. Sand.

Mr. Hazen figures the cost of sand f. o. b. San Mateo 85c plus 15c per ton for handling at San Mateo, making a total of \$1.00 per ton for this item. Mr. Lippincott uses the same figure as cost per ton and allows only 15c per cubic yard for handling, which would make his total price per ton a little bit less. As against that, Mr. Dillman figures 80c per ton at San Mateo, plus 15c per cubic yard for bunkering. Mr. Newman figures 75c f. o. b. San Mateo, plus 14c for bunkering, which would make his figure 89c. Mr. Dockweiler assumed a price of 75c per ton f. o. b. San Mateo, which he expands to \$1.01 per cubic yard as the price delivered in bins. This would correspond to about 75c per ton. There seems to be no wide difference between the majority of the witnesses on this item.

d. Crushed Rock.

Crushed rock was variously estimated. Mr. Hazen estimates 90c per ton delivered at the work, or \$1.25 per cubic yard. Mr. Lippincott says \$1.14 per cubic yard for the same item. Mr. Dockweiler estimates \$1.02; Mr. Dillman figures on landing his sand and gravel mixed at the dam site for \$2.46 per cubic yard of concrete. It is difficult to compare his figures with those of the other witnesses in this respect. Mr. Newman figures a cost of 90c per cubic yard for crushed rock delivered at the work. There is quite a difference between the witnesses on this point. Mr. Hazen does not explain his figures or analyze them. He has no familiarity with quarry work in this vicinity; he does not show that the material is the same as that with which he is accustomed to work in the East, and it would seem that his figures in this connection at least are not entitled to particular weight. As against these figures we have the figures upon which Mr. Dockweiler based his testimony, which were computed by witness English from careful computation based on inspection of the quarries adjoining the dams. Mr. English figures (p. 5619-20) that it would cost 75c per cubic yard to get the rock into the bins, including the quarrying of the rock,

placing it in the crusher, screening and conveying it to the receiving bins, power and equipment charges being included as well as labor. In his cross-examination Mr. English shows entire familiarity with the cost of the equipment necessary to do this work. Mr. Newman bases his figure for crushed rock on the quotations of local quarries and applies their cost prices to the quarry near the dam, which was actually used. He states (p. 6116-7) that his figures are based on his observations of methods used in quarries around the bay and the statements of the men who are engaged in the business. He is corroborated (p. 6134) as to the price of his quarry equipment by testimony of Mr. Ellis, who has had experience in the purchasing of such equipment. Taken as a whole, I cannot find from the record that the complainant's witnesses have justified any figures for crushed rock in excess of those to which our witnesses have testified.

c. Hauling.

In the matter of hauling, Mr. Hazen and Mr. Lippincott used figures of 30c and 25c per ton mile, respectively, but Mr. Lippincott's figure includes an auxiliary charge of 40%, which he adds to all his direct costs, which would make his cement-hauling cost about 32c (Exhibit 112, p. 7). Mr. Hazen's figure of 30c includes an allowance of 5c per mile, or \$25,000 in gross, for maintenance of the road between San Mateo and Crystal Springs. This figure on its face seems excessive in view of the fact that the road is a public highway and in all probability the county would stand at least a portion of the expense, and the company would do only that work that was absolutely necessary to keep the road in passable condition. It should also be borne in mind in this connection that the cost of construction of the roads in the Spring Valley property is covered by independent items in the appraisal. He states (p. 5854) that he has never had any experience in hauling contracts in the Western States, has never heard of any contractor in California who paid \$6,000 per mile for road repairs. Mr. Hazen's whole figure on hauling

seems to have been based on an unfortunate experience he had in constructing one of the Springfield reservoirs, where he had to build a new road and subsequently had it wear out. Mr. Lippincott says (p. 6897) that he does not know the prices for motor-truck hauling in this vicinity. It seems to me that the best evidence of the cost of hauling introduced in this case is the testimony of Mr. W. H. Bechtol, who has had extensive experience in hauling, having handled six motor trucks for the last two or three years and is familiar with the cost of operating and maintaining them (p. 5788). He inspected the road from San Mateo to Crystal Springs dam and figures that the cost of hauling over that road, even if it were paved with macadam instead of the present paving, would not exceed 20c per ton mile, year 1913. Assuming the volume of traffic which would be involved in handling the Crystal Springs dam material, his figures are worked out in Exhibit 117; Mr. Dillman assumes those figures in making his analysis, and so does Mr. Newman. Mr. Dillman also recites his experience costs of 20c per ton mile in a 60-mile haul over the Sierra roads—Shasta County, I believe it was. (P. 6360-61.)

Mr. Dockweiler figures 30c a ton mile, including road maintenance, but I am inclined to think that his figure is too liberal in view of Mr. Bechtol's very positive testimony that 20c is adequate. Mr. Lippincott also testifies that they hauled material for the construction of the aqueduct for about 15c or 16c per ton over very flat, level roads (p. 5469), which is practically the characterization of the road from San Mateo to Crystal Springs, except the last half mile or so. If Mr. Dockweiler has figured his price of sand a little low, this extra 10c per ton mile will offset that. I should say also that there was a difference between the city and the company as to the total distance to be hauled. I believe the testimony shows that Mr. Dockweiler estimated the distance by a speedometer on an automobile, and Mr. Lawrence made an exact measurement; it is probable that Mr. Lawrence's figures are correct in that event. If your Honor accepts them, then the hauling costs of the city will have to

be modified to that extent. I don't think it makes a very great difference in gross.

f. Mixing and Placing.

The cost of mixing and placing of the concrete was variously estimated by the witnesses as follows: Mr. Hazen, \$1 per yard, excluding plant equipment and forms, for which an additional \$2 is allowed. Mr. Lippincott, mixing and placing, \$1 per yard for direct costs only, to which 40% should be added for indirect costs. Mr. Dillman, \$1 per cubic yard, including labor, power, water and equipment charges. Mr. Dockweiler, 85c per yard, including labor, power, forms, equipment and liability insurance. Mr. Newman, \$1.05 per yard for mixing and placing and tamping, labor on forms and labor and materials used in maintenance; this does not include his field superintendence or depreciation on equipment or power charges. It is rather difficult to compare the various figures, due to the difference in the elements which are covered by them. It would seem that Mr. Hazen's charge of \$2 per yard for plant equipment and forms was grossly in excess of any allowance made by any other witness in the case, as Mr. Lippincott's indirect charges of 40% include equipment charges and all his labor is included in the direct cost of \$1. Mr. Lippincott indicates the character of the expenses that are covered by his auxiliary charges in his Exhibit 112. All the witnesses except Messrs. Hazen and Lippincott agree that a construction camp would pay for itself out of the profit from the board of the men. Mr. English corroborates this by testimony based on his own experience. See also Mr. Newman's testimony, p. 5812. Mr. Hazen refuses to segregate his \$2 charge for plant equipment and forms (p. 5858), stating that he cannot give a detailed schedule of it because he has never personally handled work in that way; and in view of this refusal it is impossible to tell how he reached the figure. It looks a good deal as if he might have made up his mind that \$9 per yard was the proper price for concrete and entered in an item for plant equipment and forms

sufficient to make up his total where he could not expand it otherwise. Mr. Lippincott's direct charge of \$1 seems reasonable enough until he starts to tack on his 40% for auxiliary cost based on Los Angeles and other experience. I shall discuss this auxiliary cost again very shortly. It is worth noting that Mr. Lippincott's method of mixing and placing (p. 5482-3) does not differ materially from that outlined by our witnesses. It involves hoisting the material to the top of towers and discharging it through spouts. Mr. Lippincott bases his mixing and placing costs on the records of construction of a large Government dam in Idaho, Spaulding dam, and the Gibraltar dam near Santa Barbara. On page 6 of Exhibit 112 he shows his segregation; it would appear that he has added to the 84c, which is the direct labor cost of the Government dam, an additional 37c for plant installation and depreciation on equipment, and then added an additional 40% auxiliary charges, which, according to his definition, as given in his testimony, and the segregation on page 20 of Exhibit 112, have been at least in part covered by the plant installation and depreciation charges which he has there estimated. It is very apparent, of course, from an examination of the Government dam items on page 21 of Exhibit 112, that a great many very expensive operations are included in the auxiliary costs which would not be met with in constructing the Crystal Springs dam, but I will take that up in connection with the discussion of indirect costs in general. With respect to the Spaulding dam, Mr. Lippincott's figures were so much in variance with the records which we had of the construction that it seems impossible to determine what weight should be given to them. I refer your Honor particularly to the discussion between Messrs. Lippincott and Ellis, on pages 6686-8 of the record. With respect to the Santa Barbara dam (Exhibit 112, p. 6), Mr. Lippincott's own figures show that the actual direct cost of mixing and placing so far has been 64c, to which he adds an estimate of 25c for forms, making a total of 89c as the average of his estimated direct costs. Increasing this by his 40% would make it only

\$1.20, as against Mr. Hazen's \$2; and, as I am prepared to show, 40% is a grossly excessive percentage to use on Crystal Springs construction. On defendant's side Mr. Dillman testifies to a cost of \$1 for mixing and placing, to which he adds 15c for forms, making a total cost, including forms, of \$1.15, which is not far from Mr. Lippincott's reported costs on the Gibraltar dam. And Mr. Newman's \$1.05 for the labor of mixing and placing and on forms, when added to his charge of 6c for form lumber, 7c for power and 23c for depreciation on equipment and structures other than the quarry equipment, gives a total of \$1.41, which is at least equal to Mr. Lippincott's figures, leaving Mr. Hazen's at least \$1.60 in excess of everybody else. He adds \$2 for the labor and forms, and \$1 for mixing and placing, making a total of \$3; \$1.40 subtracted from that would leave \$1.60. It should, of course, be borne in mind that Messrs. Newman and Lippincott figure on the company doing the work itself without the necessity of paying the contractor's profit, while Messrs. Hazen, Dillman and Dockweiler figure on contracting the work. Mr. Dockweiler's mixing and placing costs are based on the testimony of Mr. English and total 85c, which he checks by reference to the State Highway Commission costs (p. 5779-85). While there is quite a wide discrepancy between Messrs. English and Newman on this point, it must be admitted that Mr. English has considerable experience to back his judgment in the matter. His testimony, on pages 5614 to 5686 of the record, shows that he is thoroughly familiar with the methods and costs of mixing and placing concrete. He figured in detail the cost of the equipment which he proposed to use, which in principle does not differ widely from that proposed by Messrs. Lippincott and Newman, and by estimating the cost of each operation reaches the figure which I have just mentioned. The only criticism that was developed through cross-examination of this witness was that he had used No. 3 lumber for forms, giving him a cost of 8c for this charge. Mr. Newman, using No. 1 lumber, makes the forms cost about 15c. So that Mr. English's figures of 7c, if increased by 8c a yard, fully appear to have met all the

criticism that counsel was able to develop on cross-examination. In support of his figures Mr. English recites the cost of mixing and pouring concrete in the railroad bridge across the Missouri River in South Dakota in 1906-7 as 40c per cubic yard, not including forms; 65c for mixing and placing concrete for the bridge over the Kaw River, containing 18,000 cubic yards of concrete; cost of \$1.10 for pouring concrete in a concrete bridge near Redding in February, 1915—but this included the cost of reinforcing the concrete. All of these costs included installation of equipment, cost of overhead and depreciation on equipment and power (p. 5615-6). It is indeed difficult, and I shall not attempt, to reconcile the variances in the testimony of Mr. English and Mr. Newman on the cost of mixing and placing concrete. Both have had extensive experience and each of them has testified in the light of that experience; if anything, I should say that Mr. Newman's experience would be likely to lead him to an estimate somewhat in excess of the probable costs by reason of the fact that his practice has been mostly connected with the construction of concrete piers for the State Harbor Commission involving very difficult and expensive sub-aqueous construction. He, of course, had a great deal of previous experience in connection with the concrete work of the Southern Pacific Company.

Probably Mr. Dillman's figures and Mr. Lippincott's figures, taken in conjunction with an application of reasonable indirect costs, very closely check and are as near right as could be ascertained. There is no doubt in my mind, from a reading of the record, that Mr. Hazen's figures are grossly excessive on this point.

Counsel spoke in his argument of what he claimed were the improper methods used by our witnesses in estimating the opinion of placing the concrete in Crystal Springs dam. I want to refer briefly, in conclusion, to Mr. Lippincott's testimony on this same subject, which, as I stated, virtually confirms the opinion of Messrs. Newman and English:

(5482) "MR. GREENE—Q. Outline briefly the way this dam would be built and the concrete mixed and put in place?

"A. The idea I had about mixing concrete and placing it in this dam is somewhat as follows, and it is controlled very largely by the fact that the dam is an arch dam. Your Honor has frequently seen in the city towers with elevators that were elevating barrels or skips of concrete and dumping the concrete into spouts and then the discharging of the concrete through these spouts into the walls of buildings. I have thought that in building this dam a number of these towers might be placed along the upper side of the dam where the slope is almost vertical and the concrete raised through those towers and discharged on to the dam through these spouts.

"Q. It would be mixed down there where the powerhouse is now, wouldn't it, or on the other side?

"A. It would be mixed on the upper side of the dam and hoisted and then discharged through the spouts. Where dams are straight dams the most effective way probably is to handle the concrete by means of cableways and skips, and that is the way it is usually done. The large Government dam that I spoke of handled their materials in that way. Where the dam is curved it introduces a problem of having your cables on a straight line and your dam on a curve, and it is rather awkward delivering the material. On these large Government dams they had two or three cableways over the dam and the concrete was hoisted and then put on these cableways and run out and then dumped into the spouts and conveyed to the exact point in the dam desired. That was my conception of how that might be done in this place."

It is unnecessary for me to read further. The testimony which I have just read, from the plaintiff's best qualified witness on concrete, absolutely checks the methods which Mr. Newman assumed would be used in the construction of the Crystal Springs dam, and is not very dissimilar to the method proposed by Mr. English. I submit that the weight of the testimony substantiates our position in this respect.

MR. GREENE—You ought to join with that, Mr. Searls, a discussion as to the height of the spout.

MR. SEARLS—Did Mr. Lippincott specify the height of his tower?

MR. GREENE—I think he did; I think he specified 30 feet.

MR. SEARLS—I will be glad to have that reference; I was unable to find the testimony.

THE MASTER—Of course, Mr. Lippincott's method did not necessarily involve a high drop. His towers could go up as his dams went up, and he could drop it only 10 feet if he wanted to.

MR. SEARLS—I think Mr. English's method presupposed a very high tower, something like 180 feet. I don't think Mr. Newman's did.

THE MASTER—Somebody adopted the plan of a trestle and a spout—I think it was Mr. Dockweiler.

MR. SEARLS—No; Mr. Dockweiler, I think, used the basis of Mr. English. I think that was Mr. Hazen's reference to Eastern methods.

THE MASTER—Mr. Hazen used the skips and wagon.

MR. GREENE—I think the reference your Honor makes is to Mr. Newman's testimony.

g. Supervision, Profit and Contingencies.

The remaining items in the Crystal Springs concrete, consisting of field overhead, supervision and profit and contingencies, are pretty much matters of opinion. Mr. Hazen says 98c; Mr. Lippincott includes it all somewhere in his 40%, which amounts to \$2.39; Mr. Dillman allows \$1.04; Mr. Dockweiler 83c; and Mr. Newman allows 31c for superintendence and engineering and 59c for contingencies, casualties, etc., making a total of 90c—but, of course, allows no contractor's profit on this, as he has figured on doing the work with the company's force. Probably a sum in the neighborhood of \$1 is sufficient for this item, under all the showing in the case.

h. Indirect Costs.

There are one or two additional features which need discussion in this connection. The first of these is Mr. Lippincott's so-called indirect or auxiliary costs. He has taken these principally from four jobs: the Government dam, Spaulding dam, the Gibraltar dam, and Los Angeles aqueduct experience. An explanation of these figures, as set forth on pages 19 et seq. of Exhibit 112, shows how independable attempts are to obtain results in this manner. The Government dam includes a very large number of items that under no consideration would be met in building the Crystal Springs dam. For instance, there is an item of \$365,000 for railroad construction. All of the witnesses agree that it would be uneconomical to build a railroad to the Crystal Springs dam. At my request Mr. Dillman (pp. 5710, 5711) made an analysis of the indirect costs on this large Government dam, segregating those which would have any application to the Crystal Springs construction, and concludes that but 14½% of the direct cost of that dam can be charged to auxiliary items comparable with the Crystal Springs construction. This, if added to Mr. Lippincott's direct cost, would make his price of concrete \$6.83 per cubic yard instead of \$8.36. So far as aqueduct experience is concerned, it has developed on the cross-examination of Mr. Lippincott (pp. 5551, 5595-5612) that there are a very large number of items entered in that work which would not be met in building Crystal Springs dam, such as cement-mill losses; enormous expense of bringing domestic water supply on to the desert; heavy charges for maintaining roads and trails, building long telephone lines, which are cared for elsewhere in this appraisal, abandoned railroad surveys, tractor engines which were purchased and then abandoned, a complete reorganization of the force due to financial difficulties, all of which can be ignored in construction here. The only answer that Mr. Lippincott has on this point is that if it were not these items it would be something else. I submit that that is not testimony of the sort that ought to convince this Court. Figuring by the method which Mr. Lippincott uses, unquestion-

ably some allowance should be made for indirect costs, but from all I can gather from his testimony and the evidence in this case an allowance of less than half his percentage would be entirely adequate, particularly in view of the fact that a generous allowance for general overhead has been made by all the witnesses. In view of the fact that the Gibraltar dam is not yet completed, the indirect costs naturally appear to be a heavy percentage, but even there there is a heavy item of flood losses which should not occur in the Crystal Springs construction. It should be noted that Mr. Schussler's report on the estimated construction, which was introduced into evidence as Exhibit 131, shows that very little trouble with water was anticipated. Mr. Metcalf, in closing, attempted to check Mr. Lippincott's figures by reference to the Calaveras dam indirect expenses, which included compounding interest on the cost of preliminary excavation made in 1875. He obtained a generous figure of 51%. But Mr. Ellis, by a proper adjustment of the record costs (pp. 11095 to 11101), shows that the auxiliary expenses on that construction should be 16.2% instead of 51%, thus further checking my contention that less than half of Mr. Lippincott's percentage would be adequate. Another close check on this contention is shown in Mr. Ellis' segregation of the experienced indirect costs on the Central reservoir in Oakland, which amounted to 22%, with unusually high equipment charges (p. 8244).

i. Weight of Concrete.

Another special bit of evidence which counsel has directed considerable attention to has been Mr. Dillman's supposed shortage in weight in his concrete mixture. In the first place, it seems to me that the whole discussion on this point is more or less immaterial, as Mr. Dillman did not originally reach his figure of \$6.90 by synthetical methods, but adopted that on the basis of his contracting experience and later on the request of Mr. Steinhart and myself made an analysis of that figure which he thought was reasonable. Considerable dispute arose during the trial as to whether he had included sufficient sand and gravel

in his concrete mixture to make a cubic yard of concrete. Mr. Dillman admitted that his weights were somewhat underestimated, but refuses to concede the weights that were obtained by the other witnesses. While I am not sufficiently familiar with the technique of construction to say which is right and which is not, it is, of course, apparent that the weight of the testimony of the case is against Mr. Dillman's contentions. Assuming, however, that that is the case, it seems to me a matter of small importance in making an analysis which was merely intended to be corroborative of an analysis already reached, and it does not reflect on Mr. Dillman's qualifications as an engineer because he does not happen to remember the text-book weights of these materials. His statement was made on authority of the Grant Gravel Co., who stated that they would guarantee the weights which they gave him. If Mr. Dillman had taken the contract at his figures on the strength of his analysis it is probable that the gravel company would have had to give him a little more sand and gravel than they estimated in order to live up to their guarantee. I doubt seriously whether one contractor out of ten would be able to tell what a cubic yard of concrete weighed, and the exact weight would appear to depend largely on the amount of ramming and tamping that was done. Taken as a whole, Mr. Dillman's figure seems to be amply substantiated by the testimony of all the defendant's witnesses and also by that of Mr. Lippincott, if a reasonable allowance for auxiliary expenses be considered in connection with his direct costs.

j. Summary.

To sum up, I should say that Mr. Hazen, reaching his figures by assuming a grossly excessive price for cement and grossly excessive charges for forms and equipment, finds himself able to check them with his actual Eastern experience only by the most arbitrary application of percentages for what he terms local handicaps, none of which are justified either by his own experience or by any corroborative testimony in this case. Mr. Lippincott, estimating his direct costs along fairly reason-

able lines, has added to his figures grossly excessive percentages for auxiliary expenses and has also assumed too high a price for cement. Mr. Dillman has in the first place based his figures on his own experience in constructing dams in Oregon and diversion dams in California, particularly in Stanislaus County. He appears to be closely checked by the application of any fair percentage of labor increase to Mr. Hazen's Eastern records and is somewhat in excess of Mr. Newman's carefully estimated figures, due probably to the fact that Mr. Dillman has included the contractor's profit and Mr. Newman has not, as he figures on doing the work with the company's forces. It seems to me that Mr. Newman's estimate of \$6.50 is entitled to great consideration by this Court, both on account of his extensive experience in laying concrete and the absolutely sound reasons which he gives for each of his steps. Cross-examination served to strengthen rather than weaken any of the figures which he advances. There is also much evidence to support Mr. Dockweiler's figure. In the light of the testimony of other witnesses his mixing and placing charges may be a bit underestimated but they were based on Mr. English's estimate and that, in turn, is corroborated by the personal experience of this witness on other concrete jobs. Taken as a whole, I do not see how your Honor can justify a figure in excess of that which has been used by Mr. Dillman for the Crystal Springs concrete.

With respect to the auxiliary structures of the Crystal Springs dam I shall not attempt a discussion here except to observe that the original cost of driving the tunnel is shown to have been but \$11 per foot in the testimony of Mr. Robert Higgins in the last case admitted in this case as Exhibit 211, p. 26. Mr. Lippincott's figure seems too high for this work and it is probably due to the adoption by him of very expensive methods of construction. Mr. Dockweiler states the logical way to construct this shaft and tunnel would be to construct the tunnel first and the shaft later, dropping the material behind instead of hoisting it up through the top. This difference in method probably accounts for the difference in price of these two witnesses.

I might say with respect to the Howard cut, that the testimony given by the witnesses with respect to trenching and puddling would, in a large measure, apply to the construction of that structure.

k. Other Concrete Structures.

Referring to the smaller concrete structures outside of the city distributing system, a differential has been added by all of the witnesses testifying. Mr. Hazen adds on an average \$3 to most of them; Messrs. Dillman and Dockweiler add, on an average, \$2. Defendants' figures have been largely substantiated by the experience of the Southern Pacific Company, as related by Mr. Newman, in the construction of concrete culverts which cost \$5 to \$6.50 a yard, exclusive of cement; also by the contract price of construction of the Fort Mason Tunnel walls, which was \$6.50, which, added to the price paid for cement by the Commission, gives \$8.14. Mr. Newman testifies that on this contract a profit of \$1.84 per yard was made by the contractor, his estimate being based on the reports of his inspector, who was constantly on the job, keeping track of every item of contractor's expense, and the only thing besides profit which could be included in that \$1.84 would be the small office overhead, which the contractor might have. I think that a profit of that amount on a unit price of \$6.50 is altogether too high to consider as directly comparable with this case.

It is very significant to me that all of complainant's witnesses in taking the comparative jobs which we have used, such as the Fort Mason job and the Central Reservoir job in Oakland, are inclined to criticize them as requiring an addition before their comparability is established, but they always seemed to overlook the fact of excessive profit, or excessive force account charges, or other items which would tend to decrease the profits if the application were fairly made. I do not think that that is a fair method of application. I also remember the city distribution reservoir at Twin Peaks. Mr. Hazen read the contract prices on the concrete that went in that reservoir, or at least he stated that he had considered them; it developed that the concrete there was reinforced concrete, which obviously cost more; and, again, at the filter galleries at Sunol, Mr. Elliott introduced some testimony as to their cost, and it turned out that it was reinforced concrete.

1. Stone Dam.

With respect to the stone dam in Pilarcitos Canyon, Mr. Hazen raised his figures on the assumption that rock would have to be brought from a considerable distance, although Mr. Higgins who built the dam testifies on page 9 of Exhibit 211 that the "rock for the dam was got about 200 or 300 feet away on the upstream side out of a granite canyon. There was lots of loose rock and they didn't have to blast. I don't remember a bit of powder being used. The cement was hauled from Millbrae; the sand was gathered from the creek beds in the neighborhood." And on page 10 he estimates the cost of construction in 1903-4 as being \$10 a cubic yard, which is just the figure that Mr. Dillman uses, being about 75c in excess of the original cost. Of course Mr. Hazen hastens to deny that he would change his figures even if the rock were at hand as soon as he finds out the actual facts which were reported by Mr. Higgins; but I don't think that that fact helps his testimony any. That is one of the advantages of Mr. Hazen's method from his point of view; that by assuming certain general considerations and refusing to analyze he can whenever pinned down to actual facts leap from crag to crag as it were and escape the consequences of any oversight in his estimates, whereas a witness who has carefully analyzed his figures must be prepared to meet them. To my mind it does not mean that his estimate is any more valuable for that reason.

m. Comparative Jobs.

In support of the figures which our witnesses have used on these smaller concrete structures Mr. Newman cited the cost of building the Fort Mason tunnel wall of which the contract price, added to the cost of cement delivered at the depot, was \$8.14, comparable with a figure of from \$8.50 to \$9.00, used by Mr. Dillman on most structures, outside of the Crystal Springs dam; and also the concrete work on the city reservoirs. This contract price, moreover, included a very large profit to the contractor, based on the records of the contractor's cost obtained by Mr. Newman's inspector who was constantly on the job, had access to the pay-rolls, and obtained a very accurate record. The only thing that he appears to have omitted was the contractor's

office force overhead, which, in the nature of things, would have been a very inconsiderable percentage, as applied to one job. Counsel has adroitly sought to compare this contract price, plus cement cost, with the Crystal Springs dam figures, and has amused himself by adding even to this figure certain differentials which he conceives should be added for what he thinks would be the real cost of cement and sand.

Now, I am perfectly willing that counsel should add anything to these figures that he wants to. He can add the market price of a sack of sugar to them if he thinks it will help his case any. But I ask your Honor, in considering the figures, to consider them in connection with the structures to which the witness testified they were comparable, and to take into account the very excessive profit which the contractor made on the job.

Counsel has dilated a great deal upon the necessity of obtaining the complete cost records of this case, ignoring the contract prices and quotations. It seems to me that counsel's theory that a complete cost record always means something more than an inspector could possibly figure, and that it is always more than the contract price. In reviewing the testimony on structures I ask your Honor to pay particular attention to the comparative instances cited by the complainant's witnesses, and see how many of them really contained the completed costs. They all use contract prices as a basis for their figures, and it is no more fair to say that this represents the minimum and that they are therefore justified, than it is to say that they represent the maximum prices. There may be instances when additions have to be paid to contract prices because the contractor did not make money on the job, or extra costs were incurred. But there may also be instances where the contractor made a profit on the job so grossly excessive as to require a deduction in order that a fair comparison may be made, and it is just as likely to be one as the other. This case of the Fort Mason tunnel wall was clearly a case where the profit was too high, and a deduction should be made; and Mr. Newman's testimony on this point (6123, 6142), shows that his inspector's costs were very carefully taken, and with the exception of the small overhead percentage to which I have alluded, must be

fairly considered as representing the contractor's cost on the job. We have the testimony of Mr. Stocker with respect to the city's contracts, that the contractors themselves very frequently come to the city engineer's office to obtain these inspectors' figures and find what their previous work really did cost them, showing that if such work is accurately and carefully done the cost to the contractor, with the exception of his office overhead, can be obtained. Mr. Hazen used contract prices on his comparative figures from Eastern dams; and also on his comparative figures for riveted pipe. He was also adding something to these contract prices to meet what he calls "California handicap." But we don't find him making any effort to ascertain whether the contractor's profit was not excessive in many of these cases. He doesn't pretend to know that, and the only way he could find it out would be through the use of some reliable inspector's figures, as the contractor's books would not ordinarily be acceptable to the engineer of the builder.

I shall now take up a new subject:

4. Brickwork—Outside of Tunnels.

The only testimony adduced by the complainant as to the cost of brickwork outside of the tunnel lining is Mr. Hazen's testimony; for the defendants Messrs. Dockweiler and Dillman appraised the brick structures and were corroborated in part by Messrs. Phillips and Kast.

Mr. Hazen bases his appraisal of the brickwork on some experience that he seems to have had in Albany, a matter of fifteen years ago, when he stated that the bricklayers' union interfered with the proper construction of hydraulic brick and made it much more difficult and expensive, if not impossible, to properly construct hydraulic brick walls afterwards. He figures prices ranging from \$40 per thousand on the San Andreas brick tower and \$50 on the Crystal Springs intake pipes and upper dam waste tunnel, down to \$20 on the Lake Honda reservoir lining. Perhaps \$30 is a close average of his prices. He states (p. 5452) that his brick prices were largely influenced by the prices of equivalent concrete work, indicating that he is not very certain in his own mind as to what brickwork would

actually cost. On page 14 of Exhibit 111 he segregates his brickwork costs so as to show that the labor cost is about \$15 per thousand and the material costs about \$12.32. I need not again go into a discussion of the fact that his price of brick is 50c a thousand too high and that his price of \$2 per barrel for cement is excessive. As to the labor charge, on cross-examination (p. 6956) Mr. Hazen refuses to make any segregation of this work and says that he very much doubts if any brick has been laid in San Francisco suitable for hydraulic work, that he would not take the cost of brick for building purposes as any indication of the cost of placing brick in hydraulic construction.

Whatever may have been Mr. Hazen's experience in the Eastern States, he certainly has had no experience in California or the West such as would justify an unanalyzed opinion by him as to what the work would cost here, and furthermore, his statement as to the methods of brick construction is absolutely refuted by the Spring Valley history and by the testimony of Mr. Phillips who has spent a good part of his life in brick construction.

Referring again to Mr. Higgins' testimony in Exhibit 211, page 19, particularly, we find set forth there the specifications for bricking Visitation Valley tunnel on the Crystal Springs pipe line. I quote briefly:

"The bricking to be done in the most workmanlike manner, the bed for the invert arch" (that is the foundation on which the bottom of the tunnel is constructed) "to be tightly packed and rammed with excavated material, and exactly shaped to the pattern, up to the height of three (3) feet on each side; then a good bed of mortar to be spread over the same and the bottom course to be laid in this mortar before it is set. Then follows the second course of bricks, the same as the first, regularly laid and well bedded in mortar, the joints on the inside circle not to exceed one-eighth ($\frac{1}{8}$) of an inch in thickness."

On the following page Mr. Higgins testified that the masons averaged about 2000 bricks a day in that tunnel and that the total cost per thousand brick of the work was \$30. This figure was not comparable with outside brickwork, but may be more properly compared with Mr. Dockweiler's figures on tunnel work, and also

including a price of brick which was somewhat in excess of the present day prices.

The foregoing specifications indicate that the mortar must have been carefully spread and not dumped in with a bucket and the bricks laid with a joint of mortar not more than one-eighth of an inch between them. Mr. Hazen insisted that the way to lay brick was to throw the mortar into the wall from the bucket and push the brick down into it.

In addition to that, we have the positive testimony of Mr. Phillips, who qualifies on the strength of twelve or thirteen years in brickwork, ranging from actual experience as a brickmason up to the contractor's experience in handling the jobs. He states (pp. 7538-9):

"In fact, if I was to do the work for myself, I would insist upon the men using a trowel, because with a trowel he can place this mortar so as not to have an unusual amount of mortar in any one place; where a man handles it with a shovel or a bucket in putting the mortar into the tunnel wall, he gets too much mortar in one place, and as a result it is a lot of work for the bricklayer to shovel that off, it coming up 2 or 3 inches; oftentimes he will leave it with 2 or 3 inches between the brick themselves, which is a bad feature, so that if I were doing the job myself and wanted to get what I consider the finest kind of a job, I would not allow a man to use a bucket or to shovel the mortar into the wall. It can be done with the trowel, and that would be the proper way of doing it.

"As a general rule, I would say it would not be necessary" (to wet the brick, etc.). "My experience has always been that a bricklayer will give you any kind of a job you ask for. Sometimes in a crew of men you will find some man who is slighting the work, and that man will be discharged, but taking it as a rule, the bricklayer will give you a thoroughly rubbed-up job if you tell him you want it."

Mr. Phillips also states that there were no union restrictions on the amount of brick which should be laid by a man in a day and that it would actually cost less to do a big brick job in San Francisco than it would in the country. He testifies that he has known of only one grade of common brick on the market during the years in question, selling at prices ranging from \$6.50 to \$7 in

maximum (p. 7539-7545). He estimates that the brickwork in the Merced drainage tunnel would cost about \$25 per thousand, and the gate tower at Crystal Springs less than \$36, although he did not give an exact figure on the last item. These estimates were stated to have been based on his general judgment, and not on close analysis. The conditions which Mr. Phillips describes as to the cost of brick and cement, the use of lime and mortar, the output per man per day, and the effect of unionization of the brick industry so strongly affirm the assumptions upon which Mr. Dockweiler's and Mr. Dillman's appraisals were based that it seems clear that they are entitled to much more weight than that of Mr. Hazen who has, with his customary sangfroid picked up the Eastern job and applied some so-called percentages to it to meet California conditions without sufficiently informing himself as to what those conditions are.

Mr. Dillman does not testify to any extensive experience in brickwork himself, but reaches figures which are not far different from those used by Mr. Dockweiler, the latter being set forth in some detail in Exhibit 142. An examination of this exhibit will show your Honor that where Mr. Dockweiler was dealing with difficult work, such as laying brick around the intake pipes at Crystal Springs dam, that he made a high allowance for his labor costs as compared with the much lower costs of laying it in outside structures. An examination of the labor costs which he shows on page 3 of Exhibit 141 for his tunnel bricking also indicates that his appraisal is consistent and that he has allowed sufficient additional cost for the more difficult work of bricking in the tunnels.

A reference to Mr. Higgins' testimony, to which I have referred here, shows a reasonable increase over the labor prices originally paid by the company. Mr. Dillman's prices are not analyzed, but his assumptions as to the cost of brick and the rates of progress appear to be reasonable and in consonance with Mr. Higgins' report of actual rate at which the work was originally done (p. 6707-8).

I have already referred to the testimony given by Mr. Kast as to the prices paid by the city for brick, which would appear to comply with even Mr. Hazen's specifications as to quality.

Counsel suggested, on argument, that Mr. Hazen's figures on

brickwork were absolutely checked by Mr. Phillips, who testified for the city, and, presumably on the strength of counsel's assumption that Mr. Phillips checked Mr. Hazen, he lauds the qualifications of the former gentleman very highly. I am willing to accept counsel's statement of Mr. Phillips' qualifications; but I am not willing to accept his statement that he checks Mr. Hazen, except in the single instance of the Crystal Springs outlet tunnel. I call your Honor's attention to the testimony in this connection, page 7535:

"MR. SEARLS—Q. Have you ever seen any of the brick structures of the Spring Valley Company?

"A. I have.

"Q. What structures have you seen?

"A. I have been in the tunnel under the Crystal Springs reservoir; I have been in the tunnel out here at Lake Merced, the drainage tunnel, I believe they call it, and I have seen that drainage culvert out there in connection with that drainage system.

"Q. What were the circumstances under which you saw these structures?

"A. I visited these properties, not for the purpose of making any appraisal, but simply in company with other appraisers of the city who were appraising various portions of the Spring Valley plant.

"Q. At that time, did you examine the brick work in question?

"A. I did, naturally.

"Q. What would you say would be a fair price, or range of prices, per thousand, for reproducing those particular brick structures in 1913, taking, first, the culvert, perhaps, and then the tunnels?

"MR. GREENE—I would like to know if Mr. Phillips knows anything about the construction of those, other than what appears from a superficial examination, before he makes that estimate.

"MR. SEARLS—I will stipulate that he does not know, or you can ask him.

"MR. GREENE—That is all right; unless he does, I hardly think it would be fair to make the estimate.

"A. I can say this, that I was not called upon at the time that I was visiting these different works to really appraise them,

and the question of appraising this work was not presented to me at all until late yesterday afternoon, and I have not given the matter any particular thought, except that I considered, after having been fifteen years in the business, I can look at any piece of brick work and give you some idea of what it is worth. I think if a man can't do that, he does not understand his business."

Then Mr. Greene cross-examined him to some extent as to his qualifications, and I then asked him, (7537):

"Q. What would be your estimate of the cost per thousand of laying brick in a structure such as the Merced Culvert?

"A. I should believe that work would cost about \$25 a thousand, laid in place.

"Q. How many brick would you figure on a mason laying a day on work of that sort?

"A. It would run, I suppose, from 8 to 12 hundred bricks a day.

"Q. In the tunnels, what would you figure the cost per thousand, and how many brick per day would be laid?

"A. In the tunnels, I would figure a man would average about 500 brick to the man, and that work would run along about \$36 a thousand."

Now, the only tunnels that Mr. Phillips had seen were the Crystal Springs tunnel, on which Mr. Hazen had put the brick work at \$30 a thousand, and the Lake Merced outlet tunnel, upon which Mr. Hazen does not segregate his cost of brick lining from the excavation cost. I believe, however, Mr. Lippincott placed some figure on that Lake Merced tunnel brick lining, which figure was very much in excess of this one.

MR. GREENE—Mr. Searls, may I ask you a question?

MR. SEARLS—Yes.

MR. GREENE—Mr. Higgins says that for the Lake Merced tunnel they laid 2000 brick per day per man; Mr. Phillips estimates 500; which does the city want to tie to?

MR. SEARLS—I will leave you to decide that; I don't know anything about brick work.

MR. McCUTCHEN—Perhaps they had four times as good men in Mr. Higgins' time as they have to-day.

MR. SEARLS—That is one possible explanation.

The most that can be said then is that on this one structure—the Crystal Springs tunnel, Mr. Phillips did make a rough estimate somewhat in excess of the one that Mr. Hazen used, but that on the Merced culvert, which was obviously a much easier structure to appraise accurately on a casual examination, he is \$5 a thousand under Mr. Hazen. It also shows that Mr. Hazen used very little discrimination in placing the same price on brick per thousand, laid in a difficult tunnel lining, as he did on the Merced culvert, which was comparatively easy of construction.

I do not discuss Mr. Lippincott's testimony on brick work in detail, because he stated frankly that he had not had much experience in brick work, and agreed that his unit cost of brick was too high, also because he used concrete as a substitute in the appraisal and his testimony related only to tunnel linings.

MR. GREENE—Mr. Searls, he gave an estimate, including brick and including concrete; he did not eliminate brick from consideration.

MR. SEARLS—I think he did testify that his estimate finally wound up with including concrete, didn't he?

MR. GREENE—Yes.

5. Flumes.

MR. SEARLS—The next subject I shall take up will be the consideration of flumes. In this connection I desire to hand your Honor Table 6.

The reproduction cost of the Spring Valley flumes, with the exception of tarring and caulking and the excavation units, has been agreed upon by both parties, and the figures will be found in Joint Exhibit 192 (Record, p. 9740). On the question of excavation Table 6 shows the figures of the various witnesses, namely: Messrs. Hazen, Herrmann, Martin, Dillman, Dockweiler and Ellis. Mr. Hazen's figures of 40c for earth, \$1 for loose rock and \$2 for solid rock were based, as he states, on his judgment, and he at-



TABLE 6.

COMPARATIVE UNIT COSTS OF FLUMES—AGREED ITEMS NOT GIVEN

NOTE: Lumber agreed prices in place \$47.00 per M.

Item	Material	Quantity	Unit	Hazen	Herrmann	Martin	Dock-weller	Dillman	Ellis
Pilaritos Dam and Aqueduct	Painting	543	Sq. Yds.	.10	.10		.15		
Under Flume at Outlet of Wasteway, Tunnel 1 and Pilaritos Dam—362' long	Caulking	5,096	Ltn. Ft.	.01	.01		.01		
	Excav.—Earth	190	C. Y.	.50	.50		.30	.25	.32
	Excav.—Solid Rock	190	C. Y.	2.00	2.00		.75	1.00	1.10
Pilaritos Side Flume Feeding Into La Brea Reservoir	Excav.—Earth	3,138	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Earth	9	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	362	C. Y.	2.00	2.00		.75	1.00	1.10
	Painting	778	Sq. Yds.	.10	.10		.15		
	Clearing	1.7	Ac.	70.00	75.00		40.00	50.00	
	Tarring	2,300	Ltn. Ft.	.005	.01		.004		
Trestles—Pilaritos Side Flume—120 lin. ft.	Excav.—Earth	218	C. Y.	.40	.50		.30	.25	.32
	Excav.—Solid Rock	73	C. Y.	2.00	2.00		.75	1.00	1.10
Upper Feeder Flume into Side Flume—29 ft. long	Excav.—Earth	173	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	10	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	55	C. Y.	2.00	2.00		.75	1.00	1.10
	Clearing	0.10	Ac.	70.00	75.00		40.00	50.00	
Lower Feeder Flume into Side Flume—341 ft. long	Excav.—Earth	152	C. Y.	.40	.50		.30	.25	.32
	Excav.—Solid Rock	78	C. Y.	2.00	2.00		.75	1.00	1.10
	Clearing	0.20	Ac.	70.00	75.00		40.00	50.00	
Flume—2nd Section—2674 lin. ft. including Sand Box and Landing Inside Dimensions 3' x 5'	Excav.—Earth	2,426	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	1,485	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	60	C. Y.	2.00	2.00		.75	1.00	1.10
	Clearing	1	Ac.	60.00	75.00		40.00	50.00	
	Tarring & Caulking	22,170	Ltn. Ft.	.015	.015		.014		
Flume—4th Section—340 lin. ft. Inside Dimensions 3' 6" x 21½"	Excav.—Loose Rock	315	C. Y.	1.00	1.20		.50	.50	.65
	Clearing	0.1	Ac.	60.00	75.00		40.00	50.00	
	Tarring & Caulking	2,040	Ltn. Ft.	.015	.015		.014		
Flume—6th Section—1970 lin. ft. Inside Dimensions 3' 6" x 21½"	Excav.—Earth	1,000	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	1,000	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	28	C. Y.	2.00	2.00		.75	1.00	1.10
	Tarring & Caulking	13,720	Ltn. Ft.	.015	.015		.014		
	Clearing	0.7	Acres	60.00	75.00		40.00	50.00	
Stone Dam Aqueduct	Clearing	1.5	Acres	70.00	75.00		40.00	50.00	
Feeder Flumes Nos. 1 and 2 above Stone Dam—245 lin. ft. of Flume	Excav.—Earth	261	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	562	C. Y.	1.00	1.20		.50	.50	.65
	Caulking	2,138	Ltn. Ft.	.01	.01		.01		
	Tarring	5,792	Ltn. Ft.	.005	.005		.004		
Main Flume Between Stone Dam and Tunnel No. 1—Length 1780 ft.	Clearing	2.9	Acres	70.00	75.00		40.00	50.00	
	Excav.—Earth	1,404	C. Y.	.40	.50		.30	.25	.32
	Excav.—Rock	2,423	C. Y.	2.00	2.00		.75	1.00	.65
	Caulking	51,376	Ltn. Ft.	.01	.01		.01		
	Tarring	51,376	Ltn. Ft.	.005	.005		.004		
Trestles—Trestles on Main Flume between Stone Dam and Tunnel No. 1—424 lin. ft. No. 1 Trestle 368 lin. ft., 1 Leg.	Excav.—Earth	17	C. Y.	.50	.50		.30	.25	.32
Covered Main Flume—Tunnel No. 1 to Tunnel No. 2—Length 10,963 ft.	Clearing	18	Acres	70.00	75.00		40.00	50.00	
	Excav.—Earth	21,129	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	2,319	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	3,205	C. Y.	2.00	2.00		.75	1.00	1.10
	Caulking	169,030	Ltn. Ft.	.01	.01		.01		
	Tarring	169,030	Ltn. Ft.	.005	.005		.004		
Flume from Concrete Dam to Settling Tank—Tunnel No. 2—Length 597 ft.	Clearing	0.4	Acres	70.00	75.00		40.00	50.00	
	Excav.—Earth	861	C. Y.	.40	.50		.30	.25	.32
	Tarring	5,970	Ltn. Ft.	.005	.005		.004		
	Caulking	5,970	Ltn. Ft.	.01	.01		.01		
Main Flume—Tunnel No. 2 to Inverted Siphon—Length 2,905 ft.	Clearing	6.7	Acres	60.00	75.00		40.00	50.00	
	Excav.—Earth	5,192	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	1,878	C. Y.	1.00	1.20		.50	.50	.65
	Caulking	37,765	Ltn. Ft.	.01	.01		.01		
	Tarring	37,765	Ltn. Ft.	.005	.005		.004		
	Excav.—Solid Rock	585	C. Y.	2.00	2.00		.75	1.00	1.10
Flume from Inlet of Siphon and Crystal Springs Flume to Tunnel No. 3 at San Andreas Dam—Length 9853 ft.	Excav.—Earth	6,138	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	534	C. Y.	1.00	1.20		.50	.50	.65
	Caulking	111,277	Ltn. Ft.	.01	.01		.01		
	Tarring	111,277	Ltn. Ft.	.005	.005		.004		
	Iron Dors ¾" dia.	983	Lbs.				.04		
	Paint	2,222	Sq. Yds.	.10	.10		.15		
Concrete Culvert across San Andreas Dam—Length 408 ft.	Excav.—Earth	115	C. Y.	.70	.50		.40	.25	
Concrete Flume—Length 647 ft. at Outlet to Tunnel No. 3	Excav.—Earth	172	C. Y.	.70	.50		.30	.25	.32
	Backfill	54	C. Y.	Omit	.25		.30	.10	
	Paint	60	Sq. Yds.		.10		.15		
Crystal Springs Pump Flume, from Crystal Springs Pumps to Stone Dam Aqueduct—Length 19,441 ft.	Excav.—Earth	9,359	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	1,541	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	311	C. Y.	2.00	2.00		.75	1.00	1.10
	Caulking	141,803	Ltn. Ft.	.01	.01		.01		
	Tarring	141,803	Ltn. Ft.	.005	.005		.004		
Sunol Aqueduct									
Flume No. 1 (between Tunnel No. 1 and Tunnel No. 2)	Excav.—Earth	2,720	Cu. Yds.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	151	Cu. Yds.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	285	Cu. Yds.	2.00	2.00		.75	1.00	1.10
	Caulking & Tarring	10,340	Ltn. Ft.	.015	.015		.014		
Flume No. 2 (between Tunnel No. 2 and Tunnel No. 3)—Length 1862 ft.	Excav.—Earth	3,214	C. Y.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	296	C. Y.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	56	C. Y.	2.00	2.00		.75	1.00	1.10
	Caulking & Tarring	20,481	Ltn. Ft.	.015	.015		.014		
Flume No. 3 (between Tunnels 3 and 4)—Length 1043.7 ft.	Excav.—Earth	2,804	Cu. Yds.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	8,404	Cu. Yds.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	6,078	Cu. Yds.	2.00	2.00		.75	1.00	1.10
	Caulking & Tarring	44,481	Ltn. Ft.	.015	.015		.014		
Flume No. 4 (between Tunnels 4 and 5)—Length 1452 ft.	Excav.—Earth	11,175	Cu. Yds.	.40	.50		.30	.25	.32
	Excav.—Loose Rock	6,276	Cu. Yds.	1.00	1.20		.50	.50	.65
	Excav.—Solid Rock	7,140	Cu. Yds.	2.00	2.00		.75	1.00	1.10
	Caulking & Tarring	48,972	Ltn. Ft.	.015	.015		.014		

Martin did not appraise any specific flume but made a general figure for excavating as follows:

Earth.....1.50

Loose Rock.....1.00

Solid Rock.....1.75

tempted to check them by reference to Mr. Lawrence's expansion of the original costs. As Mr. Hazen testifies on page 5213, he has had no experience in building flumes and has never had any experience in excavation in the Western States, it may be questioned as to how much his judgment is worth on this point. He says, page 5221, "I have never excavated for flumes but have done work very similar in cutting road on sidehill and am familiar with how the work is done." In as much as Mr. Lawrence shows (pp. 6310-11) that his prices for excavating were not originally segregated but merely amount to his own estimate of the segregation of the total cost, it can hardly be said that Mr. Hazen's testimony on flume excavation finds substantial corroboration from any record costs.

Mr. Ellis has had extensive experience in active work of excavation for flumes right here in California and has kept careful cost records of his work (pp. 8271-8288); and his figures for flume excavation were 32c for earth, 65c for loose rock, and \$1.10 for solid rock. These figures, of course, differ materially from the figures of Mr. Martin, who has also had Sierra experience, but Mr. Martin's testimony on flumes is subject to the same objection which I made to his testimony on earth dam construction—he does not seem to have any record of his costs except his own memory and does not seem to have exercised any particular judgment in applying his Sierra costs to the Spring Valley conditions. His testimony (pp. 7710 and 7711) shows an insufficient acquaintance with the kind of material in the Spring Valley country to enable him to make a reliable appraisal. As against Mr. Martin's recollection of what his costs were, note Mr. Ellis' record costs (p. 8235), earth benching 28c a yard, Sierra granite \$1.01, slate 75c, all figured on ten-hour day and \$2.25 wage basis, which, by resolution to a nine-hour and \$2.50 wage basis, make 33c for earth work, \$1.20 for granite and 88c for slate, all based on Sierra excavation which he testifies is much more difficult than similar work in the Coast Range. Note, also, Mr. Ellis' experience costs in work on the Crocker tracts which cost about 32c a yard for sand. Mr. Ellis also develops, in connection with his testimony on this subject, experience studies in efficiency of labor based on reduction of hours from ten hours to eight hours, citing

the experience of the Pacific Gas & Electric Co. in San Francisco in this connection. It should be noted that he gives his range of costs for solid rock excavation from \$1 to \$1.25; in making up his final appraisal he uses \$1.10 (p. 10858).

Mr. Lawrence's figures on excavation costs, as brought out in his cross-examination (pp. 5308-5352), show that he has taken the maximum rates for hire of individual teams in San Mateo County and not the rates which are paid for contract work with a large number of teams, that he has arbitrarily assumed that an eight-hour day and \$2.50 wage basis would be in force, although there is no showing that any such schedule obtains in San Mateo County for large contracts; and, on the contrary, there is an affirmative showing that less than fifty miles away Spring Valley Water Co. has been working its men ten hours.

In view of these facts it would seem that Mr. Hazen's statement that Mr. Lawrence's experience costs check him when expanded on the basis just outlined, indicate that Mr. Hazen's figures for flume excavation are altogether too high.

Mr. Dillman, basing his excavation units on railroad experience where the work has to be done exactly to grade, trimmed off, etc., testifies that 25c for earth excavation, 50c for loose rock and \$1 for solid rock are the costs.

Mr. Dockweiler's excavation figures are given on page 5 of Exhibit 120 as 30c for earth, 50c for loose rock and 75c for solid rock and are based on his knowledge of what similar work is done for in this region (pp. 6191-2), especially the cost of roads in Marin County and the Hetch Hetchy Valley.

In this conjunction I should also mention Mr. O'Shaughnessy's testimony as to the contract prices paid by the city of San Francisco for excavating the railroad grade from Hog Ranch into Hetch Hetchy Valley through Sierra granite for the most part. He states (p. 10510) that the average unit price was 67c a cubic yard, and on page 10782 the various bids were read into evidence, the successful bidder bidding for the segregated materials 40c for earth, 68c for loose rock and \$1.30 for solid rock. The above contract was let

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TABLE 7.

TUNNELS—S. V. W. CO.

COMPARATIVE COST OF UNITS AS SHOWN IN AGREED INVENTORY

Tunnel	Material	Quantity	Unit	Hazen	Lippincott	Dockweiler	Dillman	Testimony					
Pilarcitos Dam and Aqueduct													
Tunnel No. 1—Brick Lined—Inner Cross Sec. Oval 36"x51"—1195 feet long Air Shaft timbered 4'x16' deep	Excavation—Solid Rock	1,759	C. Y.	Hazen did not appraise according to items as here given	15.26	8.29	4.96						
	Brick Lining and Drain	311.1	M.		69.16 (Lining only)	53.50	25.00						
	Rubble Masonry—Lower Portal	6.9	C. Y.		Not appraised	7.00	10.00						
	Cone Basin at Portal	0.5	C. Y.		"	12.00	8.00						
	Excavation—Earth	35.5	C. Y.		"	.30	.50						
	Timbering R. W. Rough Concrete Backfill (Not in agreed inventory)	2.25	M. B. M. C. Y.		Incl. in Item No. 1 6.39	Incl. in Item No. 1	45.00						
Tunnel No. 2—Brick Lined—Inner Cross Sec. Oval 16"x51"—316 feet long													
Excavation—Solid Rock	3,800	C. Y.	16.59		9.92	5.00							
	Brick Lining and Drain	718.5	M.		58.42 (Lining only)	52.50	25.00						
	Brick—Upper Portal	2.2	M.		Not appraised	52.50	25.00						
	Concrete—Lower Portal	13.6	C. Y.		"	11.00	8.00						
Concrete Backfill (Not in agreed inventory)		C. Y.	6.61										
Stone Dam Aqueduct													
Tunnel No. 1—3291.5 feet long—Brick Lined Oval 35"x435'	Excavation—Solid Rock	3,186	C. Y.	18.49	11.05	5.04							
	Brick Lining	635.9	M.	63.46	57.50	25.00							
	Concrete Backfill (Not in agreed inventory)		C. Y.	6.69									
Tunnel No. 2—3730 feet long, Concrete Lined 44"x45"	Excavation—Loose Rock	5,983	C. Y.	10.92	6.96	4.62							
	Concrete Lining	3,138	C. Y.	13.78	9.50	10.00							
Davis Tunnel													
Concrete Lined 47'x44'—1,205' long Portals and Catch Basin Concrete	Excavation—L. R.	2,209	C. Y.	9.92	6.96	4.54							
	Concrete in place	1,111	C. Y.	11.63	9.00	10.00							
San Andreas Pipe Line													
Bld Hill Tunnel 2820 Lin. Ft. Brick Lined. Oval Inside Dimens 2'x18"	Tunnel Excavation—Solid Rock	3,291	C. Y.	12.80	8.31	4.81	Testimony						
	Tunnel Excavation—Sand	444	C. Y.	12.80	8.31	3.81							
	Brick	530	M.	59.29	36.00	25.00							
	Concrete Backfill (Not in agreed inventory)		C. Y.	5.69									
Crystal Springs Pipe Line													
Millbrae to University Mound Res.	Tunnel No. 1 (393 cu. yd.)	301	Lin. Ft.	10.00	18.27	5.25	6.70						
	Brick Lining	87.3	M.	60.00	46.52	34.25		25.00					
	Backfill	160	C. Y.	5.00	Not appraised	.60			.25				
	Concrete Backfill (Not in agreed inventory)		C. Y.		1.68								
Tunnel No. 2 (2002 cu. yds.)	Brick Lining	2,114	Lin. Ft.	28.00	18.36	12.00	6.70						
	Shafts, Excavation	154.6	M.		48.38	28.00		25.00					
	Shafts, Brick Lining	17	C. Y.		Not appraised	4.00			4.00				
	W. I. Shaft Covers (2)	4.95	M.		"	23.25				25.00			
	Concrete Backfill	152	Lbs.		"	.03					.05		
	(Not in agreed inventory)		C. Y.		5.18								
Sunol Aqueduct													
Tunnel No. 1	Tunnel Excav. (15,283 C. Y.)	7,502.5	Lin. Ft.	31.00	19.95	15.00	10.49						
	Concrete Lining (14" Thick)	1,369.	C. Y.		9.11	9.00		10.00					
	Shaft Excav.	100	Lin. Ft.		Not appraised	6.50			4.00				
	Concrete Lining (1.8' Thick)	128.8	Cu. Yds.		"	9.00				10.00			
	36" C. I. Covers (for M. H.) (4)	2,000	Lbs.		"	.04					.05		
	300 Lin. Ft. 1" Rd. Steel Rods (Ladders)	800	Lbs.										
	2 Side Exit Tunnels used for disposal of excavated materials and backfill— Approx.	400	Lin. Ft.		"	.04							.05
					"								
Tunnel No. 2													
Tunnel No. 3	Tunnel Excavation (1969 C. Y.)	856.	Lin. Ft.	31.00	19.95	15.00	11.54						
	Concrete Lining (14" Thick)	1,120.	C. Y.	Incl. above	9.11	9.00		10.00					
Tunnel No. 4	Tunnel Excavation (3211 C. Y.)	1,576.2	Lin. Ft.	33.00	19.95	15.00	10.49						
	Concrete Lining (14" Thick)	1,553	Cu. Yds.	Incl. above	9.11	9.00		10.00					
Tunnel No. 5													
Tunnel No. 6	Tunnel Excavation (5785 C. Y.)	2,840	Lin. Ft.	25.00	19.95	15.00	10.49						
	Concrete Lining (14" Thick)	2,793	Cu. Yds.	Incl. above	9.11	9.00		10.00					
	Open Cut Excavation	6,099	C. Y.			.30							
	Concrete Lining (14" Thick)	1,789.4	Lin. Ft.	14.00	4.00					10.49			
	2 Side Exit Tunnels used for disposal of excavated material and backfill— Approx.	1,762	Cu. Yds.		9.00	9.00					10.00		
	Backfill	400	Lin. Ft.										
Lake Merced Tunnel													
Excav. Tunnel 3036'	Excav. Tunnel 3036'	2,121	C. Y.		Not appraised	Incl. in cost of Excav. .20	5.00						
	Excav. Drainage Drifts, 773'	6,163	Cu. Yds.		15.18	6.65		5.26					
	Excav. Drainage Shaft, 170'	780	Cu. Yds.			15.00			5.26				
	Excav. Lining Brick	315	Cu. Yds.			7.00				5.26			
	Cast Iron, Class B, Pipe 6" dia.	824.5	M.		Figured on Conc.	28.75					30.00		
	Concrete Lining (Substitute)	6,170	Lin. Ft. Per C. Y.			.79						1.20	
Lake Honda Tunnel													
Tunnel 2820' Oval 20"x 44". Inside Constructed in 1928	Excavation 50% L. R. and 50% Earth	2,820	Lin. Ft.	26.00	11.69								
	Bricks	480,834	Bricks		11.67	5.85		4.87					
	Structural Steel and Doors	254	Lbs.		Figured on Conc.	33.75			30.00				
	Concrete Lining (Substitute)		Per C. Y.		Not appraised	.10				.10			
Bernal Tunnels													
Excav. Solid Rk. Untimbered	Excav. Solid Rk. Untimbered	1,008	Lin. Ft.	25.00	17.80	9.50	5.56						
	Excav. Loose Rk. Timbered	337	Lin. Ft.	25.00	17.80	9.50		6.56					
	Brickwork—Arch	315.7	M.		43.05	32.75			25.00				
	Brickwork in manhole	2.26	M.		Not appraised	28.50				25.00			
	30" C. I. Frames and Covers (2)	1,500	Lbs.		"	.02					.06		
	12" No. 14 Sheet Steel Pipe (626 lbs.)	50	Lin. Ft.		"	.79						1.00	

Note—Except where noted, L. R. means Loose Rock.

Note—Except where noted Dillman's details do not appear in the record only totals.

TABLE 8

TUNNELS—S. V. W. CO.
COST PER FOOT

	Hazen	J. B. Lippincott	J. H. Dockweller	Geo. L. Dillman	Remarks
Tunnel		Comparative	Costs per Lineal	Foot	
Pilarcitos					
Tunnel No. 1	No Details	17.96	9.75	5.82	
Driving per ft.		• 5.76	11.13	5.18	{ *Used concrete instead of brick
Lining per ft.		•• 3.59	.04	.12	
Miscel. per ft.		—	—	—	
Total	27.50	27.31	20.92	11.12	
Tunnel No. 2	No Details	18.41	11.00	5.70	
Driving		• 6.91	11.01	5.37	
Lining		•• 3.83	.08	.05	
Miscel.		—	—	—	
Total	27.50	28.15	22.09	11.12	
Stone Dam Aqueduct					
Tunnel No. 1	No Details	18.40	11.00	5.55	
Driving		• 5.51	11.42	5.49	
Lining		—	—	—	
Miscel.		•• 3.72	—	—	
Total	27.00	27.63	22.42	11.04	
Tunnel No. 2	No Details	18.20	11.60	7.70	
Driving		12.26	8.45	8.89	
Lining		—	—	—	
Miscel.		—	—	—	
Total	29.00	30.46	20.05	16.59	
Davis Tunnel					
Driving	No Details	18.20	12.75	8.32	
Lining		10.70	8.30	9.17	
Miscel.		—	—	—	
Total	30.00	28.90	21.05	17.49	
Bald Hill Tunnel					
Driving	No Details	18.27	11.00	6.18	
Lining		• 4.29	6.77	4.70	
Miscel.		•• 2.80	—	—	
Total	27.00	25.36	17.77	10.88	
Crystal Springs P. L.					
Tunnel No. 1	No Details	18.27	5.25	6.70	
Driving	10.00	• 3.88	6.52	4.76	
Lining	*11.42	—	.32	.14	
Miscel.	2.66	•• 2.81	—	—	
Total	24.08	24.96	12.09	11.60	
Tunnel No. 2	No Details	18.36	12.00	6.70	Crys. Spgs. Tunnels No. 1 & No. 2 average \$12.05 per ft.
Driving		• 4.36	5.94	5.30	
Lining		•• 2.59	.08	.09	
Miscel.		—	—	—	
Total	28.00	25.31	18.02	12.09	
Sunol Aqueduct					
Tunnel No. 1	No Details	19.95	15.00	10.49	
Driving		9.11	8.84	9.82	
Lining		—	.26	.66	
Miscel.		—	—	—	
Total	31.00	29.06	24.10	20.87	
Tunnel No. 2	No Details	19.95	15.00	11.54	
Driving		11.93	11.78	13.08	
Lining		—	—	—	
Miscel.		—	—	—	
Total	31.00	31.88	26.78	24.62	
Tunnel No. 3	No Details	19.95	15.00	10.49	
Driving		9.11	8.87	9.85	
Lining		—	—	—	
Miscel.		—	—	—	
Total	33.00	29.06	23.87	20.34	
Tunnel No. 4	No Details	19.95	15.00	10.49	
Driving		9.11	8.85	9.83	
Lining		—	—	—	
Miscel.		—	—	—	
Total	25.00	29.06	23.85	20.32	
Tunnel No. 5	No Details	4.00	1.02	10.49	
Driving		9.00	8.86	9.85	
Lining		—	.24	1.16	
Miscel.		—	—	—	
Total	14.00	13.00	10.12	21.50	
Lake Merced Tunnel					
Driving	No Details	30.82	13.50	10.68	
Lining		8.77	7.81	8.15	
Miscel.		—	6.18	4.33	
Total	35.00	39.59	27.49	23.16	
Lake Honda Tunnel					
Driving	No Details	11.07	5.85	4.87	
Lining		• 6.30	5.76	5.12	
Miscel.		—	.01	.01	
Total	26.00	17.37	11.62	10.00	
Bernal Tunnels					
Driving	No Details	17.80	9.50	5.81	
Lining		• 6.98	7.69	5.87	
Miscel.		—	.10	.15	
Total	25.00	24.78	17.29	11.83	

NOTES:

Hazen gives no details.

J. B. L. Does not value any auxiliaries.

•• Concrete backfill not in agreed inventory.

• Concrete tunnel lining appraised instead of brick.

and the work carried out in 1914. The grading for the Hetch Hetchy railroad below the Hog Ranch, bids for which were received in November, 1915, showed the following prices from the successful bidder: granite \$1.05, solid rock 94c, soft rock 70c, earth 37c, average price 67½c. While it is perhaps not entirely fair to use contracts let at a period subsequent to that involved in the rate litigation as a basis for valuation, the prices obtained by the city on these bids certainly indicate that the prices fixed by Mr. Hazen, Mr. Martin and Mr. Herrmann are grossly excessive for the character of the work involved.

Mr. Herrmann does not give any particular data to support his figures on flume excavation and as he and Mr. Dockweiler have agreed on the cost of caulking and tarring, I need not discuss that feature.

Mr. Dillman reports railroad excavation, Niles Canyon, by the Western Pacific Co. at 18c for earth excavation (pp. 6370-71) and says that he could sub-contract to work station men for 15c.

Monday, August 28, 1916.

6. Tunnels.

My first subject this morning is tunnels. I have had two tables prepared showing the comparative unit costs of tunnels, first figuring according to the inventory schedules, and on the second table figuring according to the price per foot. These tables are numbered 7 and 8, respectively. You will note, on Table 7, that Mr. Hazen's figures are not included as he did not figure the tunnels at all on the inventory schedules; that is to say, he took a price per foot lined; that is shown in Table 8:

The cost of reproducing tunnels was handled by the witnesses Lippincott and Hazen, for the complainant, and Dillman and Dockweiler, for the defendant.

a. Hazen on Tunnels.

Mr. Hazen has derived his figure on the basis of his estimate of cost of driving a tunnel of section equivalent to a circle 6 feet in diameter, which he figures would cost \$35, per foot lined, variations from this basic cost being made in accordance with his judgment to meet tunnel sections of different diameters (Exhibit 139 and Record, pp. 6691-3). Mr. Hazen refuses on cross-examination, to segregate his price of \$35.00 per foot for the tunnel lined, other than to say that the driving would cost from one-third to two-thirds and the lining from two-thirds to one-third. He has attempted to check himself on the basis of the original cost of the tunnels through information which he states was derived from Mr. Lawrence's notes. But, like most of Mr. Hazen's corroborative data, these original costs require the application of so many percentages to wages and insurance, etc. (p. 6695), and the assumption of so many expenses which he states Mr. Lawrence did not have record of, that it is impossible to say how much of the original cost is corroborative and how much is Mr. Hazen's opinion.

The only actual experience in tunnel driving to which Mr. Hazen testifies was the Little River tunnel in Massachusetts which appears to have been a tunnel underneath the Little River. It is reasonable to surmise that this work would have been much more expensive than ordinary driving on the Spring Valley system. He testifies (6726) that it was driven through harder rock than are the Spring Valley system and states that it actually influenced his estimates to a considerable extent. He has never had any experience in driving tunnels in the Western States. In this connection it is interesting to note Mr. Hazen's statement that miners and tunnel-men would be unwilling to work in a cramped position and that you would probably save money by driving a larger section tunnel than those of the Spring

Valley system. It seems to me that anyone familiar with mining conditions would not be apt to make a statement of that sort.

On cross-examination he says that the figures he got on the early Spring Valley tunnels came from Mr. Sharon instead of from Mr. Lawrence and that "they are very old figures and we don't know very much about them" (6915). He does not know from what source Mr. Sharon got his figures (6919) and furnishes defendant no basis by which his record figures could be checked. He ignores Mr. Schussler's early reports of the Pilarcitos tunnels, which Mr. Dockweiler discusses in his testimony, and in view of his total lack of experience in the western country where tunnel-driving is a fairly common occupation due to gold mining, it seems to me that Mr. Hazen's testimony on this subject is entitled to less consideration than on most of the topics on which he has spoken. It is true, he introduced into his exhibit some record costs of a lot of eastern tunnels, but if there is one thing the testimony on tunnel costs developed in this case it is the fact that record costs on other tunnels are about as unsatisfactory a basis for estimating reproduction as could be derived. Even the complainant's witnesses state that it is seldom that two tunnels of the same type will cost anything like the same price to drive.

Looking at it as your Honor will have to, from a layman's point of view, I have been absolutely unable to reconcile Mr. Hazen's records of comparative costs with Mr. Lippincott's experience costs, Mr. Dillman's experience costs, or Mr. Lockweiler's experience costs. Each man seems to have obtained different results in his experience. Perhaps that is the reason for the divergence in the estimates.

b. Lippincott on Tunnels.

Mr. Lippincott discusses the matter in some detail, giving a very interesting exposition of the manner in which tunnels are driven. I might say that Mr. Lippincott is probably one of the best qualified men in the State on tunnel-driving. The principal criticism I have to make of Mr. Lippincott's discussion

of so-called comparative tunnels is that he seems to have selected the most difficult tunnels that he has ever driven and assumed that the same difficulties must necessarily be encountered in the Spring Valley work. He has followed the same method of appraising that he followed in his estimates on concrete and added 40% to his direct costs for auxiliary charges. I could consume considerable time at this point in reading the cross-examination of Mr. Lippincott on tunnels; it seems to me that the inherent fallacy of the application of this method of indirect costs is fairly well developed in that. It would take so long to do it, however, that I am going to pass it at this moment and ask your Honor to read it in considering this branch of the case. The assumption of 40%, in the light of any actual experience of which there is record in Spring Valley system seems to me most arbitrary. He has taken his aqueduct percentages, which, by the way, only amounted to 33%, with cement losses included, added 7% to them and applied the result to Spring Valley reproduction without any particular reason except that he says that these costs must be incurred; if it is not one thing it is something else. These aqueduct percentages include very large figures for power lines, water supply, transportation, equipment, cement mill losses (6872), reorganization of force, replacement of concrete due to the use of poor cement, heavy charges for road construction and other items of a like nature incidental to the construction of the aqueduct in mountainous and desert regions far distant from railroad centers, water supplies for power sources; in fact they cover conditions few, if any, of which are comparable with those which would be encountered in Spring Valley reproduction, all of which would be done within a few miles of convenient markets, good roads, railroad transportation, power distribution centers, and with a convenient water supply always at hand. Mr. Lippincott suggests in his testimony that the geological formation of the Peninsula Range is such that block or seamy slates might be encountered in driving the tunnels which would cause unforeseen difficulties with swelling ground, etc. There is, however,

nothing in either the record of Spring Valley experience or the photographs which Mr. Hazen placed in evidence (Exhibit 143) which would tend to show any particular difficulties encountered in this respect. Mr. Lippincott has emphasized the difficulties he encountered in constructing the Santa Barbara tunnel, which, I am satisfied your Honor will find on reading his testimony was built under conditions absolutely not comparable with those in this locality. Of course, if an engineer in figuring reproduction wants to stop and figure all the things that might happen and make an allowance sufficient to cover those he would be bound to get a figure high enough to satisfy any company's ambitions as to values. But it seems to me that these matters are pure assumptions and have no place in reproduction unless they are borne out by history. If the complainant in this case has been able to show that very great difficulty was encountered in driving these tunnels as a matter of actual history and that the expense incidental thereto was actually incurred there might be some justification for making a similar assumption in reproducing them; but they have not shown this. Their witnesses have drawn almost entirely on their imagination as to what might happen, based on their experience in distant localities under different conditions as to what did happen in other work. The Lake Merced tunnel was the only one in which they were able to show that difficulty was encountered, and as I am prepared to demonstrate, those difficulties were all assumed and duly allowed for in the appraisal made by our witnesses.

Again, in his direct costs, Mr. Lippincott has assumed what appeared to be the most expensive method of construction. He wants electric locomotives with which to drive a series of short, small section tunnels scattering throughout the peninsula. He has to figure the use of some such equipment to justify his indirect expenses. These tunnels were built—and in any logical system of reconstruction would be built—by hand labor, just as any small mining tunnel is driven. The chances are ten to one that the cars would be pushed out by hand or hauled out by a mule just as Major Dockweiler assumes. The section of the

tunnel is too small to permit of large crews working at one time. The length of time required for the construction of the larger units of the Spring Valley system allows plenty of leeway for the construction of these tunnels by the most economical method and without rushing the work (6812). I had Mr. Lippincott, on cross-examination, figure the details of a crew necessary to construct one of these tunnels about $\frac{1}{2}$ a mile in length, and he could not get within several dollars a foot of his assumed cost of driving and timbering. It was also shown that there were a number of tunnels on the aqueduct driven with a much cheaper cost than any of those he has considered, which he has not used in making his appraisal of the Spring Valley work. Referring to his "Exhibit 133," he has given the cost of driving tunnels, most of which were very much larger section than the Spring Valley tunnels, necessitating larger cost per foot; has referred to the cost of timbering the Elizabeth Lake tunnel, which was probably the most difficult one driven on the entire aqueduct system; and selected costs of tunneling in granite for the most part as compared with the much softer slates and shales of the San Mateo hills. The Santa Barbara tunnel was 4 miles long (6822), and by reason of its length it is apparent that the cost of getting the material out must have been much greater than that which occurred in the relatively short Spring Valley tunnels.

Mr. Lippincott has attempted to make some allowance for these differences, but there again you lose the corroborative effect of extraneous facts by having them applied with the appraisers' own opinion hitched on. Obviously, you could take any cost of any piece of work and by adding or subtracting enough percentages to it arrive at just the figure you have used yourself. I do not say that complainant's witnesses have arbitrarily done so, but it seems very clear to me that evidence of this sort is not entitled to corroborative weight, because if the engineer's original opinion is in error his estimate of percentages by which he checks that original opinion is just as likely to be in error.

I think that your Honor will find that on the city side in

this case where we have attempted to use corroborative costs we have taken the actual figures on the job which the engineer thought comparable without adding or subtracting percentages, leaving your Honor in a position to determine how much weight should be given the corroborative evidence in the light of all the facts which were adduced at the trial with respect to the comparability of the other work, and not placing you also under the burden of determining whether an engineer's opinion as to a percentage which should be added or subtracted from such cost is correct.

In the matter of tunnel lining Mr. Hazen's and Mr. Lippincott's figures are subject to the same objections which I made with respect to their figures on concrete. They have assumed excessive prices for concrete, and, as I believe, an excessive price for hauling. They have ignored historical conditions as to location of sand which was originally used in lining these tunnels, although I think that criticism also goes to some of our witnesses who have also assumed that the sand would be brought from Niles. The testimony of Mr. Higgins, shown in Exhibit 211, page 4, shows that the sand in the Bald Hill tunnel was gathered from the creeks near Millbrae.

c. Dockweiler on Tunnels.

Turning now to Mr. Dockweiler's appraisal, which to my mind has been the most satisfactory in the matter of tunnel costs, we find first of all that Mr. Dockweiler has had actual experience in tunnel-driving on the coast, having driven one long and two short sewer tunnels for the City of Los Angeles and a number of mining tunnels. His appraisal of the Spring Valley Peninsula tunnels has been based as far as possible on historical costs; he has a report from Mr. Schussler made in 1867 which is in evidence on page 6739 et seq. of the record showing the actual quantities of earth and rock removed, the number of laborers' days or work, quantity of lumber used in timbering, quantity of brick, cement and lime used in lining. He has also determined from Spring Valley records the percentages of tim-

bering which was originally put into these tunnels. By that I mean whether the tunnels were half timbered or quarter timbered or the percentage of timbering that was actually done.

He has taken these quantities and applied them to present day wages and prices. His original error of working his tunnel crew nine hours instead of eight as required by law was corrected (6960-1) and the corrected figures appear in the substituted sheet 1 of Exhibit 141. Mr. Dockweiler figured on driving the Peninsula tunnels by handwork as there would be ample time to do this and have them finished before the Crystal Springs dam and larger units of the system were completed, and has carefully figured in detail the equipment which would be necessary for driving each tunnel. On cross-examination Mr. McCutchen sought to make fun of this witness by humorous references to the provisions made for the maintenance of the mules he proposed to use on the job, etc.; but I submit that the results were not nearly as ludicrous as one would derive in contemplating Mr. Lippincott's outfit of nine or ten cars that he was going to use in driving a half a mile of tunnel, using apparently a new car for every other load of dirt. A careful reading of Mr. Dockweiler's cross-examination on the question of tunnels does not reveal to me that he has made any serious error in his computation and that if it was necessary to build an extra blacksmith shop or mule-shed the cost which should be added is nominal. Contrast this supposed deficiency with the application of Mr. Lippincott's percentages which would show that it would cost \$16,450 for a domestic water supply for his camps in driving the Sunol tunnels along the banks of Alameda Creek (6842). Mr. Dockweiler has figured his crews for each tunnel; he has assumed that the Sunol tunnels would be driven with power drills and mechanical equipment; and has made due allowance in the case of the Merced tunnel for the difficulty of handling the water. The Spring Valley profile sheet of this tunnel which was discussed in the evidence shows that but six shafts were originally driven to handle the water for this, all of which were taken care of in separate inventory items and are figured by Mr. Dockweiler.

Contrast with this experience Mr. Lippincott's statement, that he would drive wells every 50 feet. This shows again the danger of disregarding the history of the actual structures, which was available to the witnesses for complainant, and attempting to substitute their imagination of what might happen and the enormous additional expense which would result if it did happen.

Of course they had trouble with water in tunneling from Lake Merced to the ocean, and the method of handling it was clearly demonstrated, and in making his tunnel estimates Mr. Dockweiler figures the cost of reproducing this tunnel and meeting the water difficulty in the very manner that it was historically met (6755). His price of \$27.49 per foot shows the result of his computation.

I think I need not add anything further to what the record shows with reference to Mr. Dockweiler's appraisal of the tunnels. The long discussions to which counsel went on cross-examination in his attempt to discredit this witness on minor details does not in my opinion affect the general reliability of the estimate which was proved to have been carefully made.

d. Dillman on Tunnels.

Mr. Dillman's appraisal of tunnels was originally based on the possibly erroneous assumption that they would not have to be timbered because no timber was carried in the inventory, except for the Merced tunnel. While I think the evidence sufficiently develops the fact that the tunnels were originally timbered at least in part and that allowance should be made for this factor for that reason if for no other, in fairness to Mr. Dillman I don't think that he should be severely criticised for not having figured on the timber. As he states, there was nothing in the character of the ground on the surface to indicate that timbering would be necessary in addition to the lining, which consideration would be supported by the fact that the tunnels are for the most part of small section and could be lined almost as fast as they were driven. In fact there is evidence to show that a considerable period elapsed between the original driving of the Pilarcitos No. 1 and

Pilarcitos No. 2 tunnels, during which they were used as water tunnels without lining, and this may have been their reason for originally timbering. Mr. Dillman did assume that some temporary timbering would be necessary in the Merced tunnel and made allowance for timbering accordingly. Subsequent to his examination Mr. Dillman corrected his inventory so as to make allowance for timbering and the corrections are found in his appraisal of these various tunnels in Exhibit 101.

Mr. Dillman's qualifications on the subject of tunnel-driving are satisfactory and are set forth at pages 6791-7. His most extensive experience has, of course, been with railroad tunnels, although he testifies to experience in driving water tunnels for the Oakdale irrigation work. These Oakdale tunnels, he admits, were through softer materials than the average in the Spring Valley tunnels and probably cost a little less to drive. Like Mr. Dockweiler, Mr. Dillman has estimated the drain shafts for the Merced tunnel separately from the tunnel itself and has taken care of the handling of the ground water in that way.

There is a statement by me in the record based on the Spring Valley records (6807) to the effect that there is only 500 feet of difficult driving in the Merced tunnel. This statement, of course, is not strictly evidence. I refer to it in passing for whatever consideration it is worth.

e. Overbreakage.

As to the question of overbreakage which arose on Mr. Dillman's cross-examination it seems that the complainant's witnesses have made allowance in their figures for overbreakage and backfilling. There is some question as I take it from reading the record whether Mr. Dillman has included any such allowance even in his final figures, if it should be made. Mr. Dockweiler, however, has made such an allowance. On page 7171 of the record I asked the witness as follows:

"Q. How did you take care of overbreak in your appraisal, Mr. Dockweiler?

"A. I assumed that the tunnel would be driven at so

much per foot, and I divided that cost per foot by the yardage stipulated in the schedule per lineal foot, and thus determined my price of driving per cubic yard; so that my price of driving per lineal foot automatically cares for the overbreak, whatever that may be. I do not allow any fixed percentage for overbreak."

And on page 6779, in speaking of laying the brickwork in the arch the witness said:

"A. Yes, but that does not follow: in handling the upper section the man has to backfill; as you make your lower section you form your invert—a carpenter will set a template for the first one, and after that the mason sets his template and he uses material to smooth around. As he gets up on the arch—

"Q. —That would increase the cost by the cost of the template and the labor of placing it, wouldn't it?

"A. Yes, but in the arch he has to throw in and backfill, he has to backfill material.

"Q. Your template is in the upper section, isn't it?

"A. That is a form that you throw the arch over; after the brick arch is in then he has to throw in his dirt and backfill between the top of his arch and his tunnel wall.

"Q. That would make the cost more in the upper section, wouldn't it?

"A. That is what I have. I have the upper section as the more expensive of the two."

I think that indicates clearly that Mr. Dockweiler did make allowance for overbreak and backfilling both in his original driving of the tunnel and in his lining.

MR. GREENE—Doesn't it, however, appear that in his synthetical method he took the actual cost of his crew and based that on the amount of excavation which would be found in the neat section described in the inventory and that his figures absolutely check that figure and do not contain a cent's additional allowance for overbreakage as the amount of neat section, as set forth in the inventory?

MR. SEARLS—Not as I understand it. He figured that the crew would drive so many feet per day and divided that figure

by the agreed schedule in the inventory and in doing that loaded his costs with the extra cost of getting at the overbreak.

MR. GREENE—I have not the evidence here, Mr. Searls, but I had a different recollection.

MR. SEARLS—Probably the allowance made for contingencies by all the witnesses would cover any small irregularities in the tunnel section. This goes to one of the fundamental differences in the appraisals of the opposing witnesses of the Spring Valley structures, and it resolves itself into a question as to how far your Honor will go in considering contingencies of this sort on a reproduction appraisal. The line must be drawn somewhere. If a witness is to be allowed to imagine fire, earthquake, flood and other accidents he may as well go the limit and add war, insurrection and invasion. Fair valuation by the reproduction method is not made on the assumption that a structure *might possibly* cost so much if it were reproduced. I make a distinction there; I think that in making assumptions historical conditions as to quantities and contingencies should be observed so far as possible. I recognize the right of complainant to have structures reproduced on present-day labor and material prices and present-day methods. But I do not think that this goes to the extent of permitting the appraiser to imagine that a lot of accidents and contingencies will happen that never did happen in the original construction so far as any evidence shows. He must substantiate his appraisal by something more than such hypothetical possibilities.

I believe that our witnesses have been consistent in that respect, for the most part. There may be cases where they have overlooked historical conditions, but if so, we have endeavored to correct the error and it has usually been due to the fact that the Spring Valley witnesses had access to all the records and all the information of the older employees of the Spring Valley Company and the city's witnesses did not—not that we were refused any information for which we asked, but none was volunteered as a rule where we did not ask it. It was not always possible to ask the questions which would bring out the information.

I think your Honor will find in examining the testimony that Mr. Dockweiler has made allowance for benching in appraising the Pilarcitos dam due to the fact that it was raised after it was originally built. Your Honor will find that he reproduced the original pipes; that he used brick in his tunnel linings because it was originally used; and he endeavored so far as it was possible to conform to the historical quantities and experience. Mr. Dillman did not, of course, have the same familiarity with the Spring Valley records and history that Mr. Dockweiler had, but he too followed the original structures so far as it was possible. I except from this statement, of course, his appraisal of riveted pipe. I believe that his testimony has been corrected wherever his attention was directed to the fact that he had not allowed for original conditions of timbering, lagging, etc., and in each of them, as I have said, it was due to his lack of information on some of those original facts.

f. Tunnel Lining.

Messrs. Hazen and Lippincott have figured on an assumed reproduction with concrete lining instead of brick. Both of our witnesses figured on reproducing the original brick lining. Mr. Dockweiler's figures for this item, as set forth in Exhibit 141, also seem to be based on fair assumptions. His price of \$7.00 per thousand for brick is borne out by the testimony of Messrs. Phillips and Kast. Mr. Phillips testifies (7531-56) that the average price for brick during the period 1907 to 1914 was about \$6.50; that there was only one grade of common brick (7545). Mr. Kast testifies as to the specifications on which the City of San Francisco has bought brick for several years past (6979-83), and corroborates the testimony of Mr. Dockweiler as to the prices paid by the city (6783) (6983). Mr. Dockweiler also has quotations from the McNear Brick Agency quoting from prices of less than \$7.00 per thousand during most of the years in controversy (6782-83). Mr. Lippincott, on cross-examination, concedes that his price of \$7.50 is probably 50c too high (6888-9).

On cement and sand and the cost of hauling there are about

the same differences that we found in the case of concrete and it is unnecessary for me to go over that question.

The cost of the brickwork in place was estimated by Mr. Dockweiler at \$37.00 per thousand on the inlet tunnel at Crystal Springs and \$23.25 a thousand on the outlet tunnel. With respect to that outlet tunnel he of course reaches a different figure from that which Mr. Phillips estimated on a cursory examination.

Mr. Dockweiler reaches a labor cost of from \$27.00 down to \$6.39, to which there should be added the cost of brick at \$7.00 plus amount of hauling for each structure, cost of the mortar per thousand, incidentals, etc., which brings him up to the price shown on page 3 of Exhibit 141, ranging from \$28.75 to \$53.50 per thousand for brick laid in the tunnel—Exhibit 141, page 4—or a cost per foot of lining tunnels ranging from \$5.76 to \$11.42. This, when added to his cost of incidentals, as shown on page 1 of this exhibit, gives his total cost per foot of these tunnels ranging from \$11.62 on the La Honda supply tunnel up to \$26.78 on the Sunol No. 2. The latter figure is not far different from the total cost first reported by Mr. Lawrence. The figure first reported by Mr. Lawrence as to the contract price of Sunol No. 2 was subsequently contradicted by evidence introduced by the plaintiff as to the price which the E. B. & A. L. Stone Company was paid for that. The only way that I can explain the difference is by the assumption that Mr. Lawrence's figure represented the sub-contract price. With respect to this Sunol No. 2 tunnel, which counsel deems a very important bit of evidence in this connection, I desire to direct your Honor's attention to Mr. Dillman's testimony on page 7083 and 7084 of the record where he states that the E. B. & A. L. Stone Company had not been financially successful in driving a number of tunnels for the Western Pacific Railroad, with which your Honor will recall Mr. Dillman was connected, that they had lost money on previous excavation, and that this tunnel which they drove for the Spring Valley Company was done as extra work and paid for very liberally as Mr. Dillman concludes, to compensate for part of their original losses. His language was: "It was something of a sop thrown out to the Stone people."

I may say in passing that I believe that that was the reason that Mr. Dockweiler and Mr. Dillman did not use that data as a part of their original appraisal, assuming that they had it in their possession as counsel states.

g. Higgins' Testimony on Tunnels in 1903 Case.

The testimony of Mr. Higgins, contained in Exhibit No. 211, throws some interesting light on the character of the brick used in the original lining of the Spring Valley tunnels and the rates at which it was laid. Your Honor will recall that he was one of the contractors that actually had the contract for bricking the Bald Hill tunnel and Pilarcitos No. 1. On page 5 of this exhibit he also corroborates testimony as to the manner in which Pilarcitos No. 1 was built and the reason for bricking it. He states that his men averaged 1500 brick a day on this work, which is a more rapid rate of progress than even the defendants' witnesses have figured on. Mr. Dockweiler figures only 500, I think.

Also that the sand for the mortar and the brick lining was gathered from the creek beds in the neighborhood of the tunnel and not brought from any distance. He gives his estimate of the original cost (p. 9) of bricking this tunnel as being \$47.00 per thousand, as compared with Mr. Dockweiler's \$53.50, and this includes very much higher prices for brick and cement than have prevailed during the years in controversy. He also testifies that on the Locks Creek tunnel his masons averaged 1300 brick per day per man in lining this tunnel, estimating the completed cost per foot as \$43.00, as compared with Mr. Dockweiler's per thousand of brick not lined. He shows that the brick used in this work were common brick and not specially selected. He also refers to the original cost of driving the Bernal Heights tunnel, \$7.75 per linear foot, as compared with Mr. Dockweiler's \$9.50. Your Honor will also find in this exhibit some interesting data on the cost of driving and bricking the Crystal Springs tunnel.

As Mr. Lippincott says he does not know much about laying brick, and Mr. Hazen has figured on concrete lining, it seems to me that Mr. Dockweiler's figures as to the cost of brick lining

the tunnel are the highest figures which your Honor can accept, Mr. Dillman's being something less. The complete costs of the various witnesses are shown, as I have stated, in Tables 7 and 8.

7. Submarine Pipe.

The next subject is submarine pipe. Table 9 accompanies this portion of the discussion, and shows the comparative figures as used by the different witnesses for submarine pipe.

Comparison of Figures.

Testimony as to the cost of reproducing the submarine pipes owned by the Spring Valley Co. which furnish part of the Alameda pipe line at the Dumbarton Point bay crossing was adduced by the witnesses Hazen, Dillman, Dockweiler and Dorward, with some supplemental data on Eastern pipes from Mr. Metcalf.

The principal elements of difference in the valuation here was, as is in the case of riveted pipe, the cost of laying, testing and making tight; by "laying," I refer to the barge work, the testing and lowering into the water and making tight. The cost of the pipe, the cost of the lead and the dipping are practically agreed upon, except, I believe, that in the case of the 16-inch line there was half a cent a pound difference in the metal for the pipe; the witnesses agreed on the price of the metal in the 22-inch line.

There was also considerable difference between the witnesses as to the number of lengths of pipe used, Mr. Hazen testifying that 714 lengths would be required, Messrs. Dockweiler and Dillman adhering to the agreed inventory and Mr. Dorward relying on his record of 696 lengths. In view of the discrepancy between Mr. Hazen and Mr. Dorward as to the actual number of lengths we are content to stand upon the agreed inventory.

a. Hazen on Submarine Pipe.

Mr. Hazen as usual refuses to go into any detail as to the cost of fabrication which would enable us to check his figures with those of our witnesses and determine just where the dis-

TABLE 2

PERCENTAGE OF TOTAL FISH CAPTURED BY SIZE

Size (mm)	Percentage (%)	Size (mm)	Percentage (%)
10-15	10	25-30	15
15-20	20	30-35	25
20-25	30	35-40	35
25-30	40	40-45	45
30-35	50	45-50	55
35-40	60	50-55	65
40-45	70	55-60	75
45-50	80	60-65	85
50-55	90	65-70	95
55-60	100	70-75	100

TABLE 9.

COMPARATIVE TABLE SHOWING UNIT AND TOTAL COST SUBMARINE PIPE

Item	Material	Quantity	Unit	Unit Hazen	Total	Unit Dockweller	Total	Unit Dillman	Total	Unit Dorward	Total
Submarine Pipe Lines—Dunbarton to Ravenswood	16" O. D. Lapwelded Steel (5/16")										
2 Lines of 16" & 2 Lines of 22"	Pipe Galvanized	710,118	Lbs.			.056	39,767				
Lapwelded Steel Flexible Ball	Dipping	111,691	Sq. Ft.		164,300	.02	2,234				
Joint Pipe 16" 395' Under Newark Slough (300' wide)	Painting Bells	7,950	Sq. Ft.		16-inch	.013	103				
16" 3,385' Under S. F. Bay (300' wide)	Furnishing 360,500 lbs. C. I. Bells, Riveting on Machining	(16" 13564)		Dillman's Length				7.50	101,730	*7.097	95,810
22" 195' Newark Slough	Laying Pipe (incl. rental of Barges, Tugboat, Service, etc.)	(22" 13564)						13.50	133,414	14.93	**201,566
22" 3,405' Under S. F. Bay	22" O. D. Lapwelded Steel (3/8")	700	Lengths			75.00	52,500				
22" 1,687-1888	Pipe, Galvanized	1,177,882	Lbs.								
22" 1,901-1902	Dipping	153,952	Sq. Ft.		259,200	.06	70,673				
	Painting Bells	11,900	Sq. Ft.		22-inch	.02	3,079				
	Furnishing 942,200 lbs. C. I. Bells, Riveting on, Machining, Laying Pipe (incl. rental of Barges, Tugboat, Service, etc.)	700	Lengths			168.00	117,600				
	Lead at Joints	121,000	Lbs.			Incl in laying pipe					
	Total				423,500		286,110		284,844		297,376
								** Dorward uses	13500.75'	* Dorward uses	13500'

UNIT COSTS OF ABOVE AUTHORITIES WITHOUT REGARD TO DIFFERENCES IN WEIGHT OR QUANTITIES

	Unit	Unit Cost		
16" O. D. Lapwelded Steel pipe (5/16")	Lbs.	.06		.056
Galvanized	Sq. Ft. or	.02 }		.02
Dipping	Lin. Ft.	.16 }		.16
Furnishing C. I. Bells	Lbs.	.08		.10
Laying Pipe Incl. Rental of Barges, etc.	Lgths.	118.75		24.83
Lead	Lbs.	.05		.05
22" O. D. Lapwelded Steel Pipe (3/8")	Lbs.	.06		.06
Galvanized	Sq. Ft. or	.02 }		.02
Dipping	Lin. Ft.	.22 }		.22
Furnishing C. I. Bells	Lbs.	.08		.0748
Laying Pipe Incl. rental of Barges, etc.	Lgths.	128.25*		30.84
Lead	Lbs.	.05		.05

* Testing is carried by Hazen in "Laying" by Dorward & J. H. D. in cost of fittings.

crepancy exists. His testimony on this subject, shown on pages 4760-4772 and 4827-4845 of the record, is based almost entirely on records of Eastern and Canadian jobs with the exception of a crossing of the Willamette River at Portland. Mr. Hazen's data as to the Portland crossing is derived through calculations made by him based on Mr. Clark's report on the cost of the work shown in the proceedings of the American Society (record, p. 4832). Mr. Dillman using the same data obtains entirely different results (record, p. 4998-5006), and an examination of the record indicates to me that Mr. Dillman's calculations involve less speculation as to what was properly charged against the work than do Mr. Hazen's. One thing appears clear from Mr. Hazen's testimony; that is that there is very little in common between any of the jobs of which he has personal knowledge or second-hand information and the Spring Valley job. The work here appears to have been done in an entirely different manner, and it is difficult to see how Mr. Hazen could have applied his knowledge or information gained in other work without making some analysis of the cost of doing the work under the conditions which would be incident to the Spring Valley job. With the experience that was had by the Risdon Iron Works, the contractors who laid the pipe, available, there seems to be no logical reason for assuming that if the work were reproduced it would entail any special difficulty different from those originally encountered. Mr. Metcalf seeks to corroborate Mr. Hazen with the record of a lot of Eastern work, but in many, if not most, of these Eastern jobs so much dredging was necessary to lay the pipe so as not to interfere with navigation that it seems difficult to consider them as comparable. The company has also attempted to use outfall sewer costs for comparative purposes, but there is certainly nothing in the record which shows that that class of work is very comparable. For instance, Mr. Sharon (record, p. 11161) cites Baker's Beach outfall sewer contract price for 18" cast-iron pipe with flexible joints which was laid on Baker's Beach, San Francisco, in the channel between Fort Point and Lands End. It is obvious, without the necessity of introducing

testimony on the point, that the difficulties of wind and tide to be encountered in the narrow bay outlet are not at all comparable with any that would be encountered at the Dumbarton crossing, and moreover, the pipe is of an entirely different character and dimensions than the Spring Valley submarines.

b. Dillman on Submarine Pipe.

Mr. Dillman's testimony as to the cost of the submarine pipe is based largely on his knowledge of the Portland Bull Run crossing to which I have just referred. His testimony, page 5006, shows that the costs on the Portland job as he derived them practically check his figures.

c. Dockweiler on Submarine Pipe.

Mr. Dockweiler bases his appraisal of the work largely on his knowledge of the historical conditions and on a detailed calculation as to the cost of fabricating and laying. It is worth while noting that he and Mr. Hazen agree on the cost of the pipe and lead. His testimony on this subject (pp. 4859 to 4881) shows that his estimate was carefully made, and does not seem to have been shaken on cross-examination. His total appraisal on both the 16" and the 22" is \$286,000 against Mr. Dorward's \$297,000.

d. Dorward on Submarine Pipe.

Mr. Dorward's testimony is shown on pages 5961 to 6015 of the record and in Exhibit 119. Mr. Dorward's qualifications as the man who was actually in charge of the laying of the 22" pipe line and his long experience with the company who handled so much of the Spring Valley pipe fabrication especially qualified him to figure the cost of reproduction of this job. His estimate is based on accurate notebook records taken at the time that the 22" pipe was laid, and he has expanded the original costs to meet present-day labor and material prices and working conditions and methods. He also takes into account that there would be a considerable saving in cost if both the 16" and 22" lines were laid at

once instead of separately as was historically done. The price of \$14.93 per foot for the 22" and \$7.09 for the 16" obtained in this manner is certainly more satisfactory evidence of what the cost of reproduction would be than Mr. Hazen's snapshot judgment based on the record of costs of a lot of other jobs most of them in the East and none of which appears from his own testimony to be exactly comparable to the Spring Valley work. Dorward's testimony in this respect also goes to show the approximate correctness attained by Mr. Dockweiler in the use of his method of figuring reproduction.

Counsel, on argument, took exception to Mr. Dorward's allowance of profit in submarine pipe reproduction; your Honor will recall from the testimony that he allowed 25%. In the light of his previous experience and the experience of the contractor, the Risdon Iron Works, in successfully laying the pipe under the methods that they used, there seems to be no reason for assuming that a greater allowance should be made for hazard than one which would cover the conditions actually met in the original construction. At the time they made their original estimates and their original bids on the price of this work, such work was undoubtedly more or less of a new departure; they were justified in figuring a higher percentage of profit than would apply to-day.

MR. GREENE—You are familiar, Mr. Searls, with the fact that they laid the 16-inch pipe in 1888; the 22-inch pipe was laid in 1902.

MR. SEARLS—Yes.

MR. GREENE—I was just trying to follow your argument that, having laid one pipe, and the prices immediately fell, why didn't that result when they laid their 16-inch pipe in 1888, if that experience had then been gained?

MR. SEARLS—I suppose there was not much difference between the profit they got in 1888 and in 1902.

MR. GREENE—I don't quite get your argument, then, Mr. Searls, as to why there should be a difference in profits as between, say, 1888 and 1913.

MR. SEARLS—For the simple reason that they had that experience which enabled them to know the conditions they would have to meet, and they could underbid competitors. I think the evidence shows that conditions in 1913 were nothing like they were in 1898 and 1902.

8. City Distribution System.

Having concluded the discussion of the various classes of structures making up the storage and transmission system of the company, we come now to a discussion of the city distribution system. It is worth noting at this point that, with the exception of those structures which involve unit prices previously determined for outside structures, the witnesses very closely agreed in their original estimates of the city distribution system; so closely, in fact, that we were able to stipulate as to the prices to be used for the immense cast-iron pipe system, the pumping machinery and equipment, and all the buildings, leaving only the cost of the distributing reservoirs and the wrought-iron pipe to be covered. To my mind it is largely due to the fact that we had fairly exact data for use in comparison with the figures for these works that enabled the witnesses to reach such close agreement on their original appraisals.

THE MASTER—What data do you refer to?

MR. SEARLS—I think when I wrote this I referred to the data as to pumping, equipment, etc.

THE MASTER—How about the cast-iron pipe?

MR. SEARLS—They had record costs on the city high pressure system, for one thing.

MR. GREENE—Wasn't it, perhaps, Mr. Searls, that cast-iron pipe was more of a standard commodity than wrought-iron pipe, and that the prices were available to each side, and that they were more or less alike?

MR. SEARLS—I think that is very probably true, Mr. Greene. I also think it is due to the fact that Mr. Elliott, of the company, and Messrs. E. P. Jones and L. W. Stocker for the city, were all men who were thoroughly familiar with the local

costs of the structures which they were appraising. Owing to the agreement, Messrs. Jones and Stocker did not testify on these units, but the testimony of Messrs Dillman and Dockweiler shows that their appraisals were largely built up on the figures supplied by these gentlemen, who would, of course, have been called had it been necessary. And I might say here that I believe if, instead of importing Eastern engineers who had no direct experience with local costs, the complainant had left the matter to its own local engineers there would have been much closer agreement on the outside structures between witnesses for both sides by reason of the fact that there would have been a common basis for reasoning.

At one time in the record counsel made an offer to let Mr. Dillman and Mr. Hazen get together on this work, but we felt that the entire basis of appraisal which the two engineers had used were so radically different that it would have been impossible for them to reach any agreement except by purely arbitrary adjustment, and we felt that that would be undesirable.

a. Distributing Reservoirs.

The comparative tables on the city reservoirs, with Mr. Dillman's details, are in evidence as Exhibit 234; I have not had them duplicated here on account of their length.

The first item in the local distribution system upon which there was disagreement between the witnesses was the distributing reservoir system comprising the University Mound, College Hill, Potrero Heights, Francisco Street, Lombard Street and La Honda reservoirs and the Clarendon Heights, Clay Street and Presidio Heights and Ocean Side tanks. Testimony for the complainant on these subjects was produced by the witnesses Hazen and Elliott, and for the city by Messrs. Dillman and Dockweiler. Mr. Dillman's views as to the basic principle on which his brickwork being largely corroborated by Mr. Phillips' testimony to which I have heretofore alluded. Most of the differences of unit costs are the outgrowth of differences in figures on excavation and concrete used in the outside works and need not be discussed here in great detail. Your Honor has already the

table introduced by Mr. Metcalf during the trial of the case showing the comparative cost estimates for each of these works. I have had the same table copied and inserted Mr. Dillman's unit prices which did not appear in the original table, thinking that it might be more convenient to use in this form.

b. University Mound Reservoir.

The figures for excavation used here were 40c by Messrs. Hazen and Elliott, 26c by Mr. Dockweiler and 25c by Mr. Dillman. Compacting, 25c by Messrs. Hazen and Elliott, 10c by Mr. Dockweiler, and 15c by Mr. Dillman.

Mr. Hazen's excavating figures are based entirely on his Eastern practise, as he states on page 7108, where he assumes that the climatic advantages in San Francisco would practically offset the higher labor cost in the East. He gives us no other data corroborating his views and no description of the Eastern works which he had in mind in making his estimate.

Mr. Elliott uses the same figure, basing his statement (pp. 7172 and 7174) on work done at the Deer Creek forebay, the Drumm power dams of the Pacific Gas & Electric Co. and Calaveras work. His figures on the Pacific Gas & Electric Company reservoirs are based entirely on statements made to him by Mr. James Martin and are subject to the objections which I heretofore voiced to Mr. Martin's testimony; namely, that his costs do not appear to be proper record costs at all but are rather his own ideas of what the work cost him and are not corroborated by any data in his possession or the records of the company. His Calaveras cost of 42.3c for excavation and hauling practically checks Mr. Dillman's figure, which totals 40c, but Mr. Elliott hastens to explain that the work is not similar and leaves us somewhat in the air as to whether he considers it a comparable job at all. The testimony in the case shows that a great deal of the material which was excavated at Calaveras had to be blasted and it might be reasonably expected that the cost of handling hard rock and loose rock would be more than the excavation costs at University Mound. With reference to the Deer Creek

forebay job, Mr. Elliott testifies (p. 7337-39) that it was a job up in the mountains about twelve miles from Nevada City and rather small job amounting to only 13,000 yards as compared with the 208,000 to be excavated at University Mound, that they had to run a construction camp there, the cost of which would be much larger in proportion to the small job than to a big one and that the cost of moving the equipment on and off the job would be considerably greater than on any of the city jobs.

Mr. Dillman cites, in support of his figures of 25c for excavating and 15c for compacting, that he has had a great deal of experience in excavating (p. 7198-99) on railroad contracts and canal construction, that the Western Pacific costs for excavation were under 20c for earth, and that the contract price for the excavation of earthwork on the laterals in the Oakdale district was only 20c a yard. He has necessarily added to such price by reason of the extra haul for the University Mound excavation and has allowed 15c for compacting.

Mr. Dockweiler reaches his figures of 26c for excavation and 10c for compacting on the basis of steam shovel excavation (p. 7228-9), figuring by his usual method of analysis of cost of labor, teams and machinery. He used scrapers until he could get a bank on which to work his shovel. His figures are found in Exhibit 145 in some detail. In corroboration of his figures he shows the cost of excavating on the Central reservoir in Oakland where for a much longer haul, namely, 1500 feet, as against the six or eight hundred feet necessary at University Mound (p. 7246), a cost of only 43c was incurred. The witnesses generally agree that about a cent a yard per hundred feet of extra haul is not an unreasonable allowance. The mean cost of all the excavation at the Central reservoir was 48c, but it included some relatively expensive trap grader and wheeler work. (See Ex. 146 and Ex. 153.)

Mr. Hazen subsequently attempts to convert this Central reservoir data into support of his figures by showing that a portion of it was handled twice, and disregards all the characteristics of the work that would tend to make it more expensive than that

at University Mound. I think his testimony in this respect is most unfair. In fact, it is about the only place in the record where I would care to accuse Mr. Hazen of being unfair in his application of figures, but it does seem to me that here the record shows that he has deliberately added a lot of figures to the Central reservoir costs based on the duplication of handling about 10,000 yards of material and has absolutely ignored the greater distance to which Mr. Dockweiler testifies the earth there was hauled, the unusually expensive equipment charges and other elements which should be taken into account on the negative side if you are going to attempt to split the figures up. Personally, I object to this attempt to take record costs and make them check other figures by computation of the witness. It seems to me that it destroys all their corroborative effect. I see no objection to pointing out the respects in which the comparative job may be more or less expensive than the one under consideration; but the attempt to figure this down to cents on the basis of opinion seems to me leaves the Court without any means of telling whether the adjustment is any more correct than the original estimate. The costs of this central reservoir are set forth in Mr. Dockweiler's Exhibit 146, and if the costs of the steam shovel and scraper work, which is the only work met with in University Mound, be averaged they will be found to be somewhat in excess of Mr. Dockweiler's figures but very much less than Mr. Hazen's figures. As against this we have Mr. Wilhelm's statement that some of this material was handled twice, reducing the yardage to which the original costs would be applicable, and we have Mr. Dockweiler's statement that all of the material steam-shoveled was hauled a much greater distance than at University Mound and that the equipment charges were very high, the work having been done on force account. As Mr. Dockweiler was on the work constantly during the construction of the reservoir, it seems to me that his statement as to the general comparability should be given more weight by your Honor than Mr. Hazen's adjustments hastily prepared over night without consideration of the elements to which I refer.

c. Concrete Lining.

The concrete lining in the University Mound reservoir was figured at \$12 for both slopes and bottom by Mr. Hazen, \$10 by Mr. Elliott, \$7.50 for slopes and \$7 for bottom by Mr. Dockweiler, \$9 for slopes and \$8 for bottom by Mr. Dillman.

Mr. Hazen offers no local corroborative data in support of his figures but recites in his Exhibit 111 some Eastern costs which are not even specified by name or locality.

Mr. Elliott attempts to support his figure of \$10 by reference to the cost of \$8.19 per cubic yard at Calaveras which, resolved from ten hours to an eight-hour day, comes out \$10.30 (p. 7356), although he admits on the following page that he does not think the direct resolution from ten hours to eight hours is a fair ratio except where machinery is used. He says that if nine-hour day were used it would make the cost but \$9.25, and I think there is ample evidence in this record to show that a nine-hour day could be used on that class of work in San Francisco. Resolved on this basis, the Calaveras figures practically check Mr. Dillman. The only other concrete jobs that Mr. Elliott has to refer to are some small jobs around the city about which he does not recollect the exact figures of cost, stating (p. 7359) that some of them have gone over ten dollars because they have been small jobs and some of them have been less. In this connection I should direct your Honor's attention to the fact that there are about 5000 cubic yards of concrete to be placed in the University Mound reservoir.

Referring again to the concrete costs in the Central reservoir, which amounted to \$8.50 per cubic yard, it would seem that Mr. Dillman's figures are amply substantiated. Mr. Hazen attempts to convert these figures into a corroboration of his \$12 (p. 7320) by coolly adding a dollar for what he calls smoothing off concrete, and 40c for asphalt in expansion joints, which he finds afterwards (p. 7434) was not put in; so that the most he can add it up to is \$9.50. The estimate of a dollar per cubic yard for smoothing over surface of the concrete is palpably so absurd that I am satisfied to stand on Mr. Dillman's figures of \$9 and \$8 per yard. It strikes me that this job, of which we have the detail record costs, shows most

conclusively that Mr. Hazen's method of figuring local costs on concrete brings him to results which are absolutely excessive. It is interesting, also, in connection with this Central reservoir job, to note the percentage of indirect cost as worked out by Mr. Ellis on a basis comparable with Mr. Lippincott's (p. 8244), where he reaches a maximum of 22% if all the miscellaneous costs are included. Your Honor will recall we had records from the Peoples Water Company of all those miscellaneous costs. The details of his figures are not in the record, but he submitted them to complainant for checking and no criticism seems to have been offered. It should also be borne in mind that both Mr. Ellis and Mr. Dockweiler have testified that the equipment charges on this work were excessively high.

Some reference was made, also, to the Twin Peaks reservoir in the municipal high pressure fire system. Mr. Dockweiler used the mixing and placing costs only in this structure as comparable because it was lined with reinforced concrete and the cost of this work was clearly not comparable with the straight concrete lining. I made a statement with respect to the history of the construction of this reservoir on pages 7313-14 of the record, to which counsel reserved the right to object but never did. I don't know whether your Honor feels entitled to consider that statement as evidence or not. If you do, it shows that concrete and excavation work involved in that reservoir construction are not comparable with anything that was met with in the Spring Valley system.

The other items in the University Mound reservoir do not represent widely divergent estimates. On the macadam lining I believe Mr. Dillman was a little higher than the other three witnesses; on the asphalt Mr. Hazen and Mr. Dockweiler practically agree.

d. The Remaining Reservoirs.

Passing to the other reservoirs which were appraised, we find about the same differences observed. On College Hill Mr. Hazen increases his price for excavation 10c a yard, Mr. Elliott uses the same, Mr. Dockweiler raises his 6c a yard, and Mr. Dillman's remains the same. There is quite a difference in the item of clay puddle in this reservoir, as in the others, which is probably based upon the

testimony of Mr. Hazen and Mr. Elliott, that they did not think they could find good clay in the city and would have to go to San Mateo County for it, and Mr. Dockweiler and Mr. Dillman both testified to the effect that good clay for puddle can be found in the city, specifying particularly the ravine back of the Alms House near Lake Honda (p. 7368).

e. Lake Honda.

This brings us to a consideration of Lake Honda where there is a very wide difference as to excavation from Mr. Hazen's and Mr. Elliott's 75c for excavating in soft material to \$2 and \$2.50 for excavating in solid rock, which prices appear to be based on the assumption that large quantities of water would have to be handled. That assumption, in turn, is based on some ancient newspaper clippings to which the city's witnesses did not have access.

MR. GREENE—And also on Mr. Elliott's testimony as to his experience with regard to the topographical characteristics of that particular valley.

MR. SEARLS—Yes, I think you are correct.

THE MASTER—My recollection is that the newspaper clippings were not received.

MR. GREENE—I think they were received, your Honor.

MR. SEARLS—I think your Honor called them "ancient documents," if I remember correctly.

In view of the fact that the cost of the La Honda drainage system is carried as an extra item in the inventory and has been separately appraised, it seems to me that practically all of the cost of this drainage would be borne in the construction of this drain pipe. On cross-examination Mr. Elliott admits that he would construct these pipes first (p. 7250). He also assumes that the material would be hauled a long distance after being excavated, for which assumption there appears to be no particular justification as it is shown that the Twin Peaks tunnel excavators are dumping the earth a short distance below the La Honda reservoir.

Mr. Dillman testifies (p. 7430) that his examination of the lake did not reveal any indication that would make him think that the

drainage system provided for in the inventory would not be sufficient to drain the water that was found or might be found there. He cites several very low costs on excavating sand.

Finally, I think the assumption that there would be much water difficulty in La Honda on reconstruction is not sufficiently borne out by any testimony in the case. The reservoir was excavated in a ravine which drains toward the Sunset district, and if there was originally some sort of a marsh at the lake with a dike formation holding the water back, as Mr. Elliott at one place suggests, it should be a relatively simple matter to blast this out and drain the lake with little expense. Mr. Hazen does not seem to be sure it could not be done, but prefers to make the more expensive assumption.

Mr. Hazen estimates \$10 a cubic yard for all the masonry in the reservoir, assuming that he would replace rubble, bricks and ashlar with concrete. Mr. Dockweiler's figures of \$5 on the concrete, are based on the assumption that the sand and rock would be obtained in the immediate vicinity of the reservoir. I am inclined to think that he is too low on that item, but I am more than certain that Mr. Dillman's allowance of \$9 is, if anything, excessive. On brick masonry the same differences between the witnesses obtain, as have been previously referred to.

The other reservoirs in the city system, perhaps, do not need extensive discussion. Most of the differences arise in different assumptions in length of haul and necessity of using borrow pits. This is particularly true of the Lombard and Francisco streets reservoirs. Mr. Hazen has virtually changed his classification in the case of the Potrero Heights reservoir from loose rock to solid rock, judging from the prices he has used. This might be considered as a violation of the stipulated inventory classification. The Clarendon Heights, Clay street, Presidio Heights and Ocean Side tanks do not constitute a very large item, and Mr. Dockweiler seems to be the high man on the main item, so I will not argue on those costs.

Taken as a whole, I think the complainant has not sufficiently proven the excessive costs which it claims for excavating and lining these reservoirs and that your Honor is not justified in assuming costs in excess of the figures which defendant's witnesses have made.

I think our figures on concrete in particular are strengthened by the testimony on this branch of the case and by the corroborative costs of the Central reservoir in Oakland and the Fort Mason tunnel.

f. Wrought Iron Pipe in the City.

Examination of the testimony on the subject of wrought-iron pipe within the limits of San Francisco shows that practically all the differences between the witnesses for the complainant and the defendants on the subject of the reproduction value of this item arise from the difference in estimates of cost of fabricating, laying and riveting the pipe in place, and in the basic excavation cost. While it is a little difficult to compare Mr. Hazen's and Mr. Dillman's figures on the additional increment which should be allowed for the cost of trenching in the city streets, and laying the pipe under heavy traffic conditions, so far as I have been able to ascertain there is very little difference between the witnesses on this point. Mr. Dockweiler's figures have been based largely on the experience of the city in laying the high-pressure fire system mains, and are entitled to consideration as having been based on actual costs. I think, however, that his figures are subject to a slight correction for the additional depth to which the trenches would have to be dug to accommodate the larger wrought-iron pipe, as compared with the cast-iron mains, for which the computation was originally made. As I before stated, the reproduction cost of the cast-iron system has been agreed upon as well as the pumping stations, thus obviating the necessity of any discussion of these elements at this point.

THE MASTER—What was the figure on excavation that Mr. Dillman and Mr. Hazen agreed upon?

MR. SEARLS—I do not think it was exactly comparable, your Honor, for the reason that they give it in total, and that the basic figures for excavation differed materially. As to the increment which resulted in applying those figures to the city system, while it cannot definitely be ascertained, there does not seem to be much difference between the two witnesses.

MR. GREENE—The difference is \$10,000 or less, isn't it, Mr. Searls?

MR. SEARLS—I do not recall.

There remains only to be discussed a few miscellaneous structures, such as the Pleasanton Ranch Houses, and I will take up that discussion now.

9. Pleasanton Ranch Houses.

These structures, consisting of dwelling houses and appurtenances, standing on the Pleasanton Ranch lands owned by the company were, in my opinion, erroneously classified with the operative structures, and appraised by the engineering witnesses. I think it needs no argument to demonstrate that these ranch houses have nothing whatever to do with the operation of the water works and that, if there is any justification at all for their inclusion in the properties of the company, it lies in the fact that they are a part of the Pleasanton Ranch land purchase. In view of these facts I attach very little importance to the estimates of any of the engineering witnesses based on the reproduction of the identical structures, less accrued depreciation. Messrs. Farquharson and Dillman appraised the structures on the cubic yardage content basis. Mr. Dockweiler reproduced them in the same way as you would estimate the cost of constructing a new building and Mr. Callaghan appraised them as a part of the real estate. I am satisfied to stand on Mr. Callaghan's figures without further discussion. I shall discuss his qualifications as a real estate expert in connection with the land question, so I will not take those up here. It is a curious coincidence that Mr. Callaghan's valuation checks within \$5000 of Mr. Dillman's depreciated valuation so that, so far as dollars and cents goes, it makes very little difference which theory your Honor accepts. Probably, if the Hop Ranch buildings were added to Mr. Dockweiler's appraisal, his figures would also closely check those of Mr. Callaghan. We concede that if the buildings are to be appraised at all, that the Hop Ranch buildings should be included. Mr. Dockweiler appears to have omitted them under the erroneous impression that the company did not have title to them.

I think most of the other structures, which might be classified as miscellaneous, such as the Wells at Ravenswood and at Pleasan-

ton, have been agreed upon, and it is not necessary to discuss them here.

THE MASTER—The Ravenswood Wells are not included by either party, are they, except for that portion where the pipe line crosses?

MR. GREENE—You mean the whole tract itself?

MR. SEARLS—No, the wells—the structures; they were appraised, but they were excluded from the rating base by everybody.

MR. GREENE—That is just where I was coming to. I wanted to be sure we were talking about the same thing.

THE MASTER—Yes, that is what I had in mind. I never heard anything about the Ravenswood Wells, except that there appears to be a joint exhibit covering those, and roads and fences and so on. I was quite certain that there was no claim that they should be valued in the rating base.

MR. GREENE—Mr. Hazen did not include them in his appraisal.

Conclusion.

This concludes the discussion of the cost of reproducing the structural properties of the Spring Valley Water Company. I shall have something further to say with respect to the totals of the figures reached by the various witnesses when I come to consider the question of the value of the properties as a whole, and shall then give them due weight in view of the original cost reproduction value and depreciated conditions. Before I can conveniently take up this branch of the argument, however, it will be necessary for me to give some attention to the overhead percentages and estimates of accrued depreciation made by the various witnesses. So, I shall take up these topics next.

10. Overhead Percentages—Comparative Figures.

Testimony as to the percentage of overhead to be added to the unit costs in finding the cost of reproduction of the Spring Valley structures was adduced by the four principal engineering witnesses, that is, Hazen, Metcalf, Dillman and Dockweiler. The percentage claimed by both the complainant's witnesses was 15% for overhead

plus 12% interest during construction, reckoned on both unit costs and overhead, making a total of 28.8%. As against these figures Mr. Dockweiler finds that 11% should be added for overhead and interest during construction of 8.9% average reckoned thereon, making a total overhead and interest during construction of 21.9%. Mr. Dillman allows 10% overhead and an average of 5% reckoned thereon for interest during construction, making a total of 16.3%. I should state that the City's witnesses figured the overhead and interest during construction separately for each structural item, and that the above figures are the average for the whole, derived from the examination of their appraisal and are not mere general estimates by these witnesses of a percentage to be applied to all the structures.

a. Hazen on Overhead.

There is no doubt, as Mr. Hazen states, that the percentage which must be added to the unit cost to cover the general overhead expenses on construction is very largely a matter of opinion and varies considerably for different jobs done in different localities under different managements. He states that the methods employed in handling engineering and water works construction vary greatly but they vary more between different municipalities and different cases than they do between cases as a class and municipalities as a class. He goes on and emphasizes the desirability of careful engineering on water-works construction, and emphasizes the fact that if the engineering is not well done the saving in engineer's salaries will be more than offset by wastage of materials and extra contingencies. He commends highly the engineering which originally superintended and designed the construction of the Spring Valley works and in this he is corroborated by all the witnesses in this case. On cross-examination, however, (p. 7780) Mr. Hazen states that the organization which he would use on reconstruction of the Spring Valley works would be more nearly comparable to that which was used in the construction of some of the recently built projects in the East, such as the Catskill and Wachusett supply than it would be to the organization which was originally used by Mr. Schussler. He even states that he never took the pains to study Mr. Schussler's organization with a view to

determining the force which he actually used in superintending the construction of these various structures. Here, again, I think it is perfectly proper to point out the unfairness of assuming, in figuring theoretical reproduction, the expense or of the necessity for a vastly more expensive organization than that which was originally used. Admittedly Mr. Schussler's organization, or the organization to be used on reconstruction, if the work were all done at once, would be larger than that which was originally employed. But there is equally no ground for assuming that any such engineering staff as was employed on the construction of the huge New York supply involving an expenditure of something like \$160,000,000, if I recall rightly, would be employed in the reconstruction of the Spring Valley structures which, even on Mr. Hazen's basis would not cost more than \$25,000,000 new.

If Mr. Hazen had taken the percentage shown by the Spring Valley books as originally applicable to the construction work and had applied this percentage to the entire works he would have obtained obviously a very much smaller percentage to cover the reasonable overhead expenses of the work and he might even have increased it a considerable extent without reaching the figures he actually used.

MR. GREENE—You know that your own witnesses said that that could not be done from the records available, Mr. Searls, and that Mr. Metcalf tried to do it.

MR. SEARLS—I don't recall that.

He cites, in support of his views, the largest waterworks construction which has taken place in recent years, the Catskill Project, involving probably every known problem in waterworks construction—dams of enormous size, conduits of enormous diameter; river crossings, supply mains to be brought into the heart of the largest city of the United States; sanitation measures necessary only in the thickly populated Eastern centers; and an enormous police force—and then comes out here and says that these conditions would be applicable to Spring Valley reconstruction. I think it goes without saying—at least it goes without saying so far as I am concerned, that they would not be applicable.

b. Preliminary Expenses.

To go into details so far as Mr. Hazen will permit us, we have no especial quarrel with his allowance of one per cent. for preliminary engineering. Mr. Dockweiler has included this in his allowance for general engineering; and while Mr. Dillman allowed by .2 of a per cent. in the first instance his final percentage for overhead was .8 of a per cent. in excess of the total of his segregation, which might very well be applied to preliminary engineering, if necessary.

The City of San Francisco has spent some money in the preliminary determination of the best sources of supply for the city, and various experts have been engaged to make reports on the available sources. While the total amount of the expense in this matter was probably in excess of what it would otherwise have been, because of the necessity of presenting evidence in various committees before the Department of the Interior and Congressional committees, it is obvious that a considerable amount, at least, should be properly charged to the Hetch Hetchy project as preliminary engineering. Just what the percentage will be is impossible of ascertainment until the project is completed; but the point I make is that the general outlines of the work having once been designed, and a Chief Engineer of the caliber of Mr. Schussler or Mr. O'Shaughnessy, or, let us say, Mr. Hazen, having been engaged to superintend the work, the need for any such elaborate organization as has been employed on the Catskill project does not seem to me to be existent in the case of the Spring Valley reproduction.

Mr. Mulholland appears to have built the Los Angeles aqueduct without the necessity of retaining a large and expensive board of consulting engineers, and there is no showing that any of the Western construction has necessitated the employment of such an engineering organization as existed on the New York, Boston, and Cincinnati works.

Take, for example, the question of policing. If the percentage which is derived from the expense on the New York supply—about 2.18%—be applied to the Spring Valley construction

it would involve an expenditure of between three or four hundred thousand dollars for policing. This sum seems ridiculously excessive on its face.

Mr. Ellis testifies that in his experience it was customary to have some of the superintendents or foremen sworn in as deputy sheriffs and permit them to carry a gun, and that they would then take charge of all the policing necessary in any construction camp with which he is familiar. I know myself that there are to-day a great many men working on the Hetch-Hetchy project without any police supervision whatever. In the construction of works such as the Spring Valley system where the camps would be separated due to the scattered location of the structures it does not appeal to my reason, nor do I find in the record any corroborative Western experience to justify any such allowance.

c. Engineering.

Mr. Hazen refuses, on cross-examination, to make any segregation of his allowance between engineering and general administration, indicating that he rests his conclusions upon the total results obtained in the Eastern construction to which he refers rather than upon the reasonable analysis of these figures tending to show their application to the problem before us.

If the engineering on the New York water supply cost 11% as he shows in his Exhibit 155, page 4, why doesn't he come out and say that the engineering in the Spring Valley Works would cost 11%? The total percentage of overhead on this Eastern work means nothing unless it is applicable to Western conditions. He can not show that it is applicable to Western conditions by stating that, as a whole, engineering and administration would add up the same, because, the minute he makes that statement, he must have some concrete idea in his mind as to what the engineering is going to amount to. He does not want to admit that the administration would be only 1.26% as was the case on the New York system and he is unwilling to admit that the engineering expenses would be less than 11.12%, and if his figures mean anything, two items so totally distinct as engin-

eering and general administration should be separated so that the court may have the benefit of a reasonable test.

Mr. Metcalf has, at least, been more accommodating in this respect. He states—cross-examination, (page 7821)—that, in a general way, the preliminary expenses of organization and engineering would amount to approximately 1%; that the administration might run from 3% to 5% and the engineering from 7% to 9%. Take Mr. Metcalf's minimum figures, and, comparing them with Mr. Dockweiler's as shown on page 7754 of the record, we do not find a great divergence. Mr. Dockweiler allows 3% for administration and 7% for engineering, although the latter figure includes preliminary engineering whereas Mr. Metcalf's 7% does not.

Of course, when we add up Mr. Metcalf's minimum engineering and administration percentage it makes a total of 12% instead of 15% which he uses comparable with Mr. Dockweiler's 10%. I don't mean by that that Mr. Metcalf intended that I should add his minimum administration percentage to his minimum engineering percentage; I am simply showing the result which would obtain if we did that.

But to return to Mr. Hazen's testimony. If he is satisfied to let the total of his figures stand on his own reputation and Eastern costs I am satisfied to stand on the objection that Mr. Hazen has neither shown any such experience in superintending the construction of water-works systems, particularly under Western conditions, nor has he adduced any figures which he has shown to be applicable to the peculiar conditions in California. I object again, as strenuously as I objected before, to his taking Eastern cost records, subtracting whatever he thinks advisable, and transporting the balance bodily out here as having any relation whatever to local conditions. Why didn't he select the Los Angeles aqueduct overhead expenses? Mr. Dockweiler has based his assumption largely upon those expenses and they corroborate his figures fully. While Mr. Dockweiler had no data as to the general administration costs on the aqueduct, the analysis which Mr. Lippincott and Mr. Hazen made practically corroborate his 3% allowance.

Your Honor has spoken once or twice about the fairness of using the Los Angeles aqueduct organization as a model for estimating the construction of water works on the ground that it was too efficient. In the first place I suspect that Mr. Creed may have rather over-developed that efficiency for your Honor's benefit when he cross-examined Mr. Mulholland in the Contra Costa case. It certainly would have been a clever way of disposing of a dangerous witness. In the second place, the record in the case before you shows that Mr. Mulholland's organization made errors enough in construction to rob it of any credit for being marvelously efficient. There is record of a large cement-mill loss; huge expenditure for tractor-engines which were never used; cement that had to be taken out and replaced; and other evidences tending to show that Mr. Mulholland's subordinates very often made mistakes. I do not wish to be thought, in making this statement, to pass any criticism whatever upon Mr. Mulholland. He is a remarkable engineer in the same way that Mr. Schussler was, and is entitled to all credit for what he has done. I am only seeking to disabuse your Honor's mind of the thought that the organization which he had was so vastly superior to the organization which any man of his capability might build up as to render the engineering and administration costs not fairly comparable with those in the present case.

d. Metcalf on Overhead.

Mr. Metcalf has based his conclusions, also, on the records of Eastern construction. I have not discussed Mr. Metcalf's qualifications heretofore, and perhaps they need no discussion—certainly his familiarity with valuation work does not. I question whether there is anything in the record which shows that Mr. Metcalf has had any considerable amount of actual experience in directing and supervising water-works construction, although he has frequently been called in in a consulting capacity in the matter of design and estimate. His work appears to have been largely that of the professional valuation engineer—he devotes most of his time to court work, Commission appraisals, etc.

So far as my examination of the record goes it shows that in the majority of cases he has testified in behalf of the public service corporations and has very seldom appeared on the side of the public. I think he stated he has never testified on the side of the public in any rate cases. While I do not think that experience of this sort would make Mr. Metcalf consciously unfair in his conclusions it does seem to me that even the most judicial temperament would be apt to get biased by reason of the point of view it is necessary to take in appearing constantly for one side of any class of cases. I do not think, for instance, that after the year or more of work that I have put on this case that I would be qualified, in my own mind, to sit as a judge in the same no matter how honestly I might try to give a fair decision. It has been my business to present the city's side of this case. I have presented every argument which I honestly felt that I could substantiate, and yet, I have not the slightest idea but that your Honor will overrule some of my contentions. I suspect that counsel for complainants would, if called upon, be equally frank with regard to some of his contentions. The only thing we would not want to do is to specify the contentions for your Honor to overrule. I only cite this as showing that constant association with one side of a controversy or a number of controversies having the same issues involved cannot but affect the judgment of anyone insofar as matters of opinion are concerned.

I think that perhaps, in this respect, Mr. Hazen is less open to criticism than Mr. Metcalf, for the record shows that Mr. Hazen has been frequently employed by municipalities to make valuations in their behalf, but, be that as it may, it seems to me that Mr. Metcalf's wholesale appropriation of Eastern records without any testimony as to his familiarity with the construction involved in most of them, and the affirmative showing on his direct-examination that his sources of information were principally reports and information given him by the various officials and water-supply committees, does not entitle his views to be accepted without modification.

In that connection it is interesting to note that, in a great many of these cases cited by Mr. Metcalf, the allowance for overhead and interest during construction is much less than the amounts which Mr. Metcalf says should be allowed in this case. I might refer to the recent Denver Union Water case where he testified, at which the Board of Arbitrators, including Mr. Hazen, estimated the total amount at 24.2%.

MR. GREENE—You ought also to state the time of construction, Mr. Searls, because that was the direct result of the interest during construction amount; the amount there was just about half.

MR. SEARLS—I was just going to take that up. The court reduced the allowance to 21.5% in making its decision which practically corresponds to Mr. Dockweiler's estimates. In considering this case it is also necessary to consider the fact that the value of the structures in the Denver case was very much less than those in the Spring Valley case and that presumably the time of construction was less.

Your Honor will find these records set forth on pages 12 and 13 of Exhibit 156, and will find that, in no case, did the awards exceed the percentages estimated by Mr. Dockweiler in this case and that, in many of them, they did not exceed the percentages estimated by Mr. Dillman. It should also be noted that Mr. Metcalf has omitted to mention the award by Judge Farrington in the last Spring Valley case, of 12.5%, which was directly applicable to the works which we are here seeking to value. It seems to me that if we are going to use records in fairness we ought to have those that are low as well as those that are high. On the following page is shown certain data taken from the Pacific Gas & Electric Company which, so far as the larger items are concerned, does not vary in the total very much from Mr. Dockweiler's figures.

It is interesting to note that on the Big Creek and Drum development which are the only large items in this Pacific Gas & Electric data, the engineering amounted to but 6% which is 1% less than Mr. Dockweiler allows and would allow for the inclusion

of an additional 1% for preliminary engineering, covering his figures, although the preliminary engineering may be included in the figures in the Pacific Gas & Electric figures here shown.

The administration percentage on these two large items is about 1.5% higher than that which Mr. Dockweiler used, but we have no means of knowing whether the two items included the same thing or not. (Pages 14 and 15) The extra percentage is for general, miscellaneous, and incidental expenses, shown on that page of the exhibit and are not explained in any way and none of the witnesses in this case have considered such an allowance necessary in view of the careful inventory and appraisal and inclusion in the unit costs of an allowance for contingencies.

I therefore find very little to corroborate Mr. Metcalf in this particular data and a great deal to corroborate our own witnesses. On the following page some further data as to dam construction is shown which practically corroborates Mr. Dockweiler's figures, 11.7% being the overhead, exclusive of interest. The data shown on this page of Los Angeles aqueduct should be corrected to read 10.4% instead of 13.7%, owing to the auxiliary expenses which are included in the overhead allowance here shown.

Your honor can determine that by an inspection of the Joint Exhibit presented by Mr. Hazen and Mr. Lippincott.

It should also be noted that most of the engineering percentages on this page, as coming from Mr. Hazen's notebook, check Mr. Dockweiler's allowance. It is only when, on page 16, Mr. Metcalf takes up consideration of the enormous overhead charges on the Catskill, New York and Boston supplies that he can find any figures anywhere that nearly approach the percentages he used, and those figures, as I stated, are absolutely unfair to use in this case. I think these jobs should be disregarded in the present valuation. They are so totally different in their nature, so much larger, and so much more complex, there can scarcely be a fair comparison. And I state that, notwithstanding the insistence of Mr. Hazen that they should be used.

e. Dockweiler on Overhead.

As contrasted with the unsegregated 15% adopted by Messrs. Metcalf and Hazen for their general overhead, we have Mr. Dockweiler's 11% carefully worked out in his Exhibit 157, and in the testimony which accompanies that commencing on page 7754. Mr. Dockweiler's overhead is segregated into 3% for general administration; 7% for engineering; insurance 1%; taxes 1%; interest during construction 9.9%, the interest and taxes being reckoned upon the 11% obtained by the addition of the previous percentages. He makes no allowance for contingencies, stating that it is fully covered by his unit cost figures, and in this he is corroborated by Messrs. Hazen and Metcalf.

f. Engineering.

His figure of 7% for engineering, he states, was obtained as a matter of judgment based largely on a study of engineering costs in the Los Angeles aqueduct and San Francisco high-pressure water system. The details of the Los Angeles costs are set forth in Exhibit 157 and are based entirely on the segregation of figures of Mr. O. P. Clemens who was cost accountant for the aqueduct. Your Honor will note, on examining these figures, that the witness has first excluded from your consideration all those items which Mr. Lippincott classified as auxiliary expenses and which clearly should not be taken care of as a part of the overhead, including, however, such portions of the indirect items which are ordinarily classified as general overhead, consisting of preliminary engineering; division administration which covers the cost of superintendence in the field and possibly could have been better classified as divisional engineering; tests of pipe, etc.; and general expenses. He has excluded from consideration items which are clearly shown by Clemens' report not chargeable to the waterway, taxes which the witness elsewhere included as a separate percentage; land and rights of way, cement mill losses, which clearly have no part in the overhead percentage on a job where the cement is bought directly from the manufacturer; power bureau expenses; and the cost of reorganization. The

succeeding sheets in the exhibit give the details of the general items and, I think, require no explanation here. The last sheet of Exhibit 157 deals with the engineering costs on the auxiliary water supply system of the city of San Francisco. There was a total of over five and half million dollars expended on this system, and the engineering involved was directly comparable with the engineering involved in laying the city distribution system of the Spring Valley Water Company, having to do with the cost and difficulty of laying mains in the congested city districts. If anything, it should be more difficult than the Spring Valley job on account of the difficulty of laying and testing high-pressure pipes.

The testimony shows (p. 7760-61), the character of the items which were covered by the engineering charges on the high-pressure system. It is my impression that there should be added to these figures a portion of the salary of Mr. O'Shaughnessy which is only \$15,000 per year and would not materially alter the derived percentages. In other words, I think there is not included the chief engineer's salary. Otherwise, I am satisfied that these tables show all the costs properly chargeable to that construction as engineering charges.

I should mention also Mr. Dockweiler's reference to the engineering costs of 7.3% on 44 different sewer jobs built by the city, totaling \$2,776,000 (p. 7764).

THE MASTER—What was the percentage he got from the high-pressure system?

MR. SEARLS—It is in the Exhibit. I think it was 7%.

MR. GREENE—It was 7 and a fraction per cent.

MR. GREENE—Mr. Searls, I think you stated in the record at the time that that went in, that there were some city administration charges that ought to be included, for instance, the city attorney's office.

MR. SEARLS—That would go to general administration, Mr. Greene, and not to general engineering.

MR. GREENE—Oh, I misunderstood you.

MR. SEARLS—Your Honor will observe that the objection which counsel suggests as to the different lengths of time affecting

the question of interest during construction on these different jobs, should not affect the engineering percentage.

g. General Administration.

The general administration item of 3%, Mr. Dockweiler states, was an allowance made on his own judgment amounting to approximately \$450,000, averaging \$90,000 a year, which he figures is sufficient to cover the general and office; law department; automobiles; rent of quarters; stationery; light; telephone; and miscellaneous incidentals to the head office. Probably one man's opinion is as good as another's on this item and it at least corresponds with the minimum figure mentioned by Mr. Metcalf on cross-examination (p. 7821 of the record).

h. Insurance.

The allowance of 1% for insurance amounting to \$150,000 a year during the construction period, seems very reasonable as it would be unnecessary to carry insurance on a great many of the Spring Valley structures. This 1% does not include fire and casualty insurance paid by the contractors during construction (p. 7765).

i. Dillman on Overhead.

Mr. Dillman is 1% lower than Mr. Dockweiler on his general overhead, and segregates his 10% into preliminary expenses two-tenths of a per cent (.2%); general expenses including general administration 1%; engineering 5%; taxes and insurance five-tenths of a per cent (.5%); contingencies 2.5%; unaccounted eight-tenths of a per cent (.8%). Mr. Dillman was the only witness who has made an allowance for contingencies. This allowance of 2.5%, reckoned on his undepreciated valuation of some sixteen millions without overhead amounts to \$400,000. It must be apparent to your Honor that this allowance in itself more than compensates for any minor insufficiencies in Mr. Dillman's estimate which may have developed during the trial. I have in mind, particularly, his failure to account for water troubles at Lake Honda; possible shortage in

concrete weight; and, possibly, one or two other small items. I am inclined to think that his allowance of two-tenths of a per cent. (.2%) for preliminary engineering and legal expenses and franchise is a little low, but if taken in connection with the (.8%) eight-tenths of a per cent. unaccounted for, makes a figure which checked that of the other witnesses.

Your Honor should also bear in mind that Mr. Dillman's figures are based, and, in fact, his entire appraisal is based, upon the assumption that the Spring Valley system is to be reconstructed under expert management such as originally governed the construction of the system. There is nothing in the history of the construction of these works, or of most of the other great projects of the country, which justifies any assumption that the works would have to be built under any except efficient management. And I am content to stand squarely on the proposition advanced by both Mr. Dillman and Mr. Dockweiler that it is fair and equitable to both the company and the city that, in making this appraisal, the engineer should assume that the company could obtain as good management for reproduction as they did in the original construction. It would be manifestly unfair to the defendants in this case, to the rate-payers whom they represent, to be compelled to allow rates based on such a reproduction cost as might result from inefficient or only passably efficient superintendence of this work. There is no need for speculating as to what allowance should be made for contingencies that might happen if the work were not efficiently done. Full justice is done the complainants in assuming, for the purpose of estimating reproduction cost, that history will repeat itself. I am sure that I should feel, and that counsel would contend, if these works had been built under inefficient management and accidents resulted during construction which greatly increased the original cost of the works, that some consideration should be given to this factor in figuring the reproduction cost, out of justice to stockholders who had honestly invested their money. I think we are just as much entitled to consider the actual historical conditions in figuring reproduction and should not be debarred therefrom merely because they happen

to be favorable to us, nor is the assumption of a high degree of efficiency at all at variance with the experience of the larger projects in the country in recent years.

It is interesting also to note in that connection that Mr. Dillman testifies (p. 7850, 7853-7857) that it has been his experience during his entire practice to make this allowance of 10% for overhead charges on a carefully figured appraisal such as he has made here and that it has invariably, of late years, worked out satisfactorily. He cites, in particular, the estimate of over a million and a half dollars worth of work on the Oakdale Irrigation system in which he used this percentage and came out with an excess within his estimate. He is not hide-bound by the figures, nevertheless, and testifies that in a rough preliminary estimate he would add as high as 15 to 25%, depending upon the uncertainty as to quantities and data available.

j. Interest During Construction.

The witnesses for both sides differ rather widely as to the percentage which should be allowed for interest during construction; Messrs. Hazen and Metcalf reckoning 12% on the cost, plus overhead; Mr. Dockweiler reckoning 9.9%; and Mr. Dillman reckoning from 5% to 7.5%. Messrs. Hazen, Metcalf and Dockweiler agreed that the rate should be 6%, while Mr. Dillman takes 5%. I believe that there is a good deal to support Mr. Dillman's argument for 5% in this matter. In his testimony (p. 7825) he dwells on the desirability of securities such as those used by the Spring Valley Water Company and assumes, I think very reasonably, that a water company starting out, without visible competition, to supply a city of the size of San Francisco would have such assurance of being able to earn a return on its investment that investors would be glad indeed to put their money into its securities. This is particularly true, because of the large quantities of real estate owned by the company, constantly enhancing the value of its properties, and entitling it always to a reasonable return on such enhanced value.

But the principal difference between the witnesses arises out

of their assumptions of the period necessary for construction. Mr. Hazen assumes a five-year period of construction, with an average of two years of full interest payment at 6% rate, basing his conclusions largely on the length of time it took to construct the New York, Boston, Cincinnati and Little River water supplies. What I have said with respect to the inapplicability of the general overhead on the two larger systems applies with even more force to the period of construction necessary. Unless you have two systems of water works which are almost identical in structures, I fail to see how any reliable conclusions at all can be drawn as to the period necessary for construction of one water works from that which elapsed during the construction of another. Furthermore, in all the cases which Mr. Hazen cites, the municipalities in question were all supplied with water from local sources, and there was no imperative reason why the additional supplies should be completed at one time, or so as to bring in their maximum development in one unit. Such an assumption in assuming the length of time required for Spring Valley reconstruction, involves a contradiction of every single condition of demand for water existing at the date of this appraisal, that is December 31, 1913. Mr. Metcalf, it is true, worked out a schedule to completion, by which he figured the Merced system would be completed first, the Crystal Springs system next, San Andreas system next, and so on. Mr. Dockweiler, on the other hand, and Mr. Dillman also, according to my understanding of the record, estimated that construction would be commenced on the various units at such a date as to complete the entire system by December 31, 1913, thus giving the city at that date the supply for which there was a more than sufficient demand, involving the least interest during construction charges, and obviating the necessity of charging development expenses. Of course, any such simple solution of the problem did not meet with the approval of the plaintiff's witnesses. They must needs bring in a little bit at a time so that they can, not only increase the construction period during which interest will run, but also find a basis for estimating development expense. This assumption, as I have stated, contradicts

every existing condition at the date of the appraisal, and again, with the utmost candor, I submit that we have a right in making this appraisal to take into consideration these existing conditions; the existing needs of the city for water, the existing demand for water; and the existing consumption of water. We are figuring the theoretical cost of reproduction of these works, it is true. But I believe we should go no further in this theoretical reproduction than is necessary, in order to meet existing conditions.

Mr. Dockweiler has outlined, on pages 7767, et seq., of the record, his assumptions as to the manner in which these works are to be constructed. It shows that he has taken into account the length of time necessary for building each dam, and for filling the reservoirs with water he has made sufficient allowance so that there can be no question but that all of the works would be completed by December 31, 1913. He assumes that the maximum period of five years would elapse during construction, but that, under his method of commencing the construction of structures so as to finish them when needed, only a little over a year and a half's interest would be paid, on the average.

He has, you will recall, reckoned his interest on each of the structures in the inventory from the time at which he figured the construction would be commenced, so as to have it run for the full length of time necessary to bring it into use as of December 31, 1913.

Mr. Dillman testifies, (p. 7750), that he has considered that, while the construction may last five or possibly six years, that no one item of construction would drag along over three years from the time it is begun until it is in service and earning revenue. It does not appear from that page whether the time it was in service earning revenue refers to December 31, 1913, but that is the conclusion that I derived from his testimony.

I think that a glance at the tables appended to Mr. Metcalf's Exhibit 156, showing the period of construction for the various

projects which he mentions therein (referring now to the last four pages of the exhibit), shows that the period of construction varies so widely that the length of time it took to build any one of the projects is not much of a criterion of the length of time necessary for another one.

For instance, I note on the next to the last page, it took them seven years to do a million and a quarter dollars' worth of work at New Bedford, and three years to do a million and a half dollars' worth of work at Springfield. Obviously, unless we have all the information as to the character of construction, and the length of time necessary to build the individual structures it is impossible to tell very much about the applicability of figures. I do not believe that your Honor should rest merely on the statement of any witness that he believes the figures are applicable unless he shows you some plausible reason to support this belief. Otherwise we are reduced to the dilemma of accepting the figures of a witness who can pull in the most data, and we will easily concede the palm to Mr. Metcalf as having the finest collection of what engineers call "dope" of any engineer in the case. Unfortunately, from his point of view, most of it seems to a mere collection of records from various sources without much discrimination as to their applicability to the case at bar. As Mr. Hazen said on his examination, it is very easy to get almost anything you want in the way of overhead percentages which have been allowed in one matter or the other. I can cite your Honor dozens of cases of the California Railroad Commission where the percentage has never exceeded twelve and a half (12.5%) and fifteen (15%) per cent. But I know from my own experience with the Commission that it would not be bound as to the overhead percentages to be used in one case by those which it used in any other case; and I will not ask your Honor to consider evidence of that sort as having very much weight. Taken as a whole, I believe that the analysis of overhead percentages made by our witnesses in this case, and taken in connection with their local experience, and local supporting data, are entitled to more consideration

than the unsegregated percentages used by Messrs. Metcalf and Hazen which were based almost entirely upon Eastern data, much of which appears on its face to be not comparable with the case before us.

Mr. Hazen and Mr. Lippincott made an interesting attempt to check their percentages of overhead and indirect costs by a study of the Los Angeles aqueduct records shown in Exhibit 138. I commend to your Honor's attention the cross-examination on that point, (p. 6870 et seq.) which I think demonstrated that, as a matter of fact, they do not check, and that Mr. Lippincott has included in his indirect charges and they have been added to Mr. Hazen's some 5% which resulted from cement mill losses an item which, in this case, is taken care of in the unit costs, and that their method of computing the general administration expenses from the United States Census reports was totally at variance with the reports of their own auditing department, and cannot be given much credence.

11. Depreciation.

I now come to the most puzzling subject in the case, from the lawyers' point of view at least—depreciation. As a preliminary to this discussion I wish to make particular acknowledgment of the assistance which Mr. Ellis has given me in the preparation of the remarks I have to make on this topic:

The problem of depreciation involves two main considerations:

1st. Provision for an annual allowance to amortize the investment in or the reproduction value of the structure at the end of its useful life.

2nd. A determination of the "present value" or depreciated condition of the structure during the rate period under consideration.

The composite annual allowance, and "present value" of the plant as a whole are simply the summations of the determinations for the individual elements.

Difficulty often arises in the discussion of the problem through

confusing the "service value" of an element with its "present value" which reflects elapsed life, although same may not be physically manifested.

If "service value" were to be considered, with a normal plant efficiently operated, this value closely approaches 100%, and would so appear in a rating base; on the other hand the annual allowances for depreciation would be a contribution to a sinking fund, which with its interest increments would at the end of the probable life, amortize his investment. Such annual contribution would be less than that required by either the "straight line" or "equal annual payment" theories, using in the latter the same rate of interest. However, in this case, the engineers have confined themselves to a consideration of "present value" as reflecting accrued depreciation. The engineers for the city have adopted the "straight line" method, the workings of this method are so familiar as to obviate discussion. The engineers for the company have adopted what is analogous to the "equal annual payment method" in that the accrued depreciation in the structures is assumed to follow a sinking fund curve.

As to the elements entering into the computations; irrespective of method, there are two determinations to be made:

1. Probable life of structures.
2. Age of existing structures.

1. As to probable life there is little necessity for discussion while there are differences on individual structures, in the aggregate the city's witnesses have ascribed a longer life to the property than those for the company (p. 8016).

2. As to age of existing structures, there is little or no dispute, the weighted average elapsed life of existing structures approximates 26 years (p. 7996).

Since we can assume an agreement, or the elimination of discussion on these two fundamental premises, the problem then resolves itself into a consideration of methods, and their reflex action on the rate of return.

It is of course conceded that any of the standard methods, if followed consistently throughout the life of the property, will result in equity both to the consumer and the company; it is also apparent from a scrutiny of the methods, that if a determination is to be made at some particular point in a mid-life period, results reached are at a considerable variance dependent upon the method used. Tables are appended showing the resultant differences in the net rate of return due to the use of either the method adopted by the city or the method adopted by the company. These tables are numbered 10, 11, 12, 13 and 14 respectively.

TABLE 10.

DEPRECIATION ESTIMATES OF PRINCIPAL WITNESSES
FOR COMPLAINANT AND DEFENDANT.

	Hazen	4% Sinking Fund	Metcalf Straight Line	Dockweiler	Dillman
Total Reproduction....	25,126,000	25,129,000	25,129,000	19,092,000	18,461,000
Accrued Depreciation..	3,192,000	3,497,000	7,836,000	5,039,000	5,150,000
Accrued Depreciation %	12.7%	13.8%	31.18%	26.39%	27.9%
Depreciated Reproduc- tion	21,934,000	21,632,000	17,293,000	14,053,000	13,311,000
Depreciated Reproduc- tion %.....	87.3%	86.2%	68.82%	73.61%	72.1%
Annual Allowance.....	284,000	282,000	404,000	269,000	273,000
Per Cent. Total Repro- tion	1.13%	1.12%	1.61%	1.41%	1.48%
Per Cent. Depreciated Condition	1.29%	1.30%	2.33%	1.92%	2.05%

Pl.Ex.97-Ex.164 Pl.Ex.161 Pl.Ex.162 Def.Ex.121(Corr.) Def.Ex.101.

Table 10 shows merely the total reproduction, accrued depreciation, percentage of accrued depreciation, depreciated reproduction, depreciated reproduction in percentage of the value new, the annual allowance, the per cent. of total reproduction, and the per cent. of depreciated condition for each of the three principal witnesses.

TABLE 11.

DEPRECIATION—EFFECT OF DIFFERENT METHODS ON RATE OF RETURN.

Comparison obtained by applying percentages of Accrued and Annual Depreciation as determined by Allen Hazen to Reproduction Value of Geo. L. Dillman. Annual Depreciation considered as 8.45% of Gross Revenue—Hazen. All amounts shown are approximate.

Structural Value

Dillman—Reproduction of Structures (Ex. 101).....	18,461,000
Hazen—Accrued Depreciation (Ex. 97) 12.7%.....	2,345,000
	<hr/> 16,116,000
Dillman—"Non used Property" Ex. 213 Depreciation on Hazen percentage	1,678,000
	<hr/> 14,438,000
Dillman—Addition all possible error.....	1,005,000
	<hr/> 15,443,000

Annual Depreciation

Dillman Gross Revenue 3,040,000 (Ex. 213)
Annual Depreciation = 3,040,000. x 8.45% = 256,880.

Net Revenue

Dillman Operating Revenue (Ex. 213).....	1,881,000
Annual Depreciation	256,880
	<hr/> 1,624,120

Rating Base

Structures	\$15,443,000.
Lands	9,000,000. (Ex. 213)
	<hr/> 24,443,000

Rate of Return

Dillman—Using Hazen percentages of Depreciation.....	1,624,120	
	<hr/> 24,443,000	=6.65%
“ Using own percentage of depreciation (Ex. 213).....		7.50%

It should be noted that for Annual Depreciation Hazen and Dillman use the same method but different per cent.

Table 11 was prepared by taking Dillman's total reproduction cost new and deducting accrued depreciation based on the percentage as derived by Mr. Hazen; from this amount Dillman's deductions for not used property were applied, being depreciated on the same percentage as that used by Hazen for his accrued depreciation; to this was added Dillman's amount of \$1,005,000, giving a total of \$15,443,000, adding to this Dillman's value for lands and rights of \$9,000,000, gives for a rating base \$24,443,000. The annual depreciation was determined by using Dillman's gross revenue of \$3,040,000, applying to which Hazen's percentage of 8.45 gives for annual depreciation \$256,880; deducting this amount from Dillman's total operating expenses, \$1,624,120; the rate of return thus determined from this method gives 6.65%.

From the exhibit of Dillman the corresponding per cent. is 7.5. That was his closing exhibit, I think No. 213. This shows that the difference between the methods of depreciation as used by Hazen and Dillman amounts to only one per cent.

THE MASTER—That means that Dillman allows more in his annual depreciation allowance than Hazen by about one per cent.? It cannot be that.

MR. SEARLS—It shows that if you adopt Mr. Dillman's rating base and Mr. Hazen's method of computing depreciation that Mr. Hazen's method of computing depreciation would result in about one per cent. smaller net rate of return. The purpose of the tables is to show the effect of the different methods on the different rating bases so that the effect of the method could be shown in the net rate of return.

THE MASTER—Yes, Mr. Dillman testified that he got $7\frac{1}{2}$ net return in this case.

MR. SEARLS—For the year 1913, yes.

MR. GREENE—I don't see what your idea is in using any given rating base here as a basis for reaching these different percentages? Is it simply to illustrate the method?

MR. SEARLS—That is all, Mr. Greene, it is just to show that different methods of depreciation would produce different net rating bases.

THE MASTER—I thought Dillman took a straight line depreciation.

MR. SEARLS—He did. I am showing what the difference would be if he used Mr. Hazen's method of depreciation instead of the straight line.

THE MASTER—I am referring to the last remark on Table 11, to the effect that it should be noted that for annual depreciation Hazen and Dillman used the same method but a different per cent. I did not think that was so; Hazen does not adopt the straight line method.

MR. GREENE—Mr. Searls is right there, your Honor; Mr. Hazen first took 8.45, as I recall it, and Mr. Dillman after criti-

cising it adopted the same principle, reckoning his straight line depreciation and the relation that that bore to the gross income.

MR. SEARLS—Mr. Dillman adopts it simply to obtain a percentage for the different years.

MR. GREENE—It is my recollection that he said that where-as at first he did not think there was merit in Mr. Hazen's suggestion he finally adopted it and approved of it.

MR. SEARLS—Yes, but he arrives at his percentage by his straight line method. You cannot separate Mr. Dillman's percentage from his original depreciation as he originally derives it.

TABLE 12.

DEPRECIATION—EFFECT OF DIFFERENT METHODS ON RATE OF RETURN.

Comparison obtained by applying percentages of Accrued and Annual Depreciation as determined by Allen Hazen to Reproduction Value of Geo. L. Dillman. Annual Depreciation considered as 1% of Depreciated Reproduction—Hazen. All amounts shown are approximate.

Structural Value

Depreciated Value from Table I..... 15,443,000

Annual Depreciation

15,443,000 x .01 = 154,430

Net Revenue

Dillman Operating Revenue (Ex. 213)..... 1,881,000

Annual Depreciation 154,430

Net Revenue 1,726,570

Rating Base

Structures 15,443,000

Land 9,000,000

24,443,000

Rate of Return

Dillman—Using Hazen Depreciation percentages..... 1,726,570
24,443,000 = 7.06%

Dillman—Using own percentages Depreciation of 7.5% of
Gross Revenue = 7.5%

As a further comparison I had prepared Table 12, wherein instead of using for the annual depreciation Mr. Hazen's percentage of gross revenue, Mr. Hazen's method of using one per cent. of the depreciated reproduction value has been applied. Starting with the same figure, \$18,461,000 and using Mr. Hazen's percentage for depreciation we obtain for the percentage of the rate of return 7.06% as against Mr. Dillman's 7.5% obtained

by a percentage of the gross revenue as shown in "Exhibit 213." In other words, instead of using a percentage of the gross revenue and interest table we have used one per cent. of the depreciated value for the purpose of determining what difference in the rate of return it would make.

TABLE 13.

DEPRECIATION—EFFECT OF DIFFERENT METHODS ON RATE OF RETURN.

Comparison obtained by applying percentage of Accrued and Annual Depreciation as determined by Geo. L. Dillman to Reproduction Value of Allen Hazen. Annual Depreciation considered as 7.5% of Gross Revenue—Dillman. All amounts are approximate.

Structural Value

Hazen—Reproduction of Structures (Ex. 97).....	25,126,000
Hazen—Deduction (Ex. 164) Expanded to Undepreciated Reproduction Value	1,879,000
	<hr/> 23,247,000
Dillman—Accrued Depreciation (Ex. 101) 27.9%.....	6,485,900
	<hr/> 16,761,100.

Annual Depreciation

Hazen—Gross Revenue (Ex. 164) 3,362,000
Annual Depreciation = $3,362,000 \times 7.5\% = 252,150$

Net Revenue

Hazen—Operating Revenue (Ex. 164).....	2,138,000
Less Depreciation	252,150
	<hr/> 1,885,850

Rating Base

Structures	16,761,100
Lands	19,394,000 (Ex. 164)
	<hr/> 36,155,100

Rate of Return

Hazen—Using Dillman's percentages of depreciation.....	1,885,850	
	<hr/> 36,155,100	= 5.22%
Hazen—Using own percentage of Depreciation.....		4.69%

It should be noted that Annual Depreciation Hazen and Dillman use same method but different percentages.

Table 13 is based on exactly the same principles as used in Table 11, that is to say, in this table Mr. Hazen's reproduction has been used and the percentage for accrued depreciation as determined by Mr. Dillman's method has been applied. The annual depreciation as determined on Mr. Dillman's 7.5% has been applied instead of the corresponding per cent. of 8.45 as used by Mr. Hazen to determine his annual depreciation on the gross revenue. The rate of return as determined by this method is

5.22%, which is comparable to Mr. Hazen's 4.69% which was obtained by Mr. Hazen in his Exhibit 164.

TABLE 14.

DEPRECIATION—EFFECT OF DIFFERENT METHODS ON RATE OF RETURN.

Comparison obtained by applying percentages of Accrued and Annual Depreciation as determined by Geo. L. Dillman to Reproduction Value of Allen Hazen. Annual Depreciation considered as 1.48% of Undepreciated Reproduction Cost—Dillman.

All amounts are approximate.

Structural Value

Hazen Reproduction Cost new..... 23,247,000

Annual Depreciation

23,247,000 x 1.48 = 344,100.

Net Revenue

Hazen—Operating Revenue = 2,138,000
Less Depreciation 344,100

1,793,900

Rating Base

Structures 16,761,000
Lands 19,394,000 (Ex. 164)

36,155,000

Net Revenue

Hazen—Using Dillman's percentage of Depreciation..... = 1,793,900
36,155,000 = 4.96%

Hazen—Using own percentages of Depreciation on 8.45%
Gross Revenue..... 4.69%

And finally, Table 14, the annual depreciation of Mr. Dillman's valuation was determined by using Mr. Hazen's assumption of one per cent. of the depreciated reproduction value. The rate of return as determined was obtained by using the reproduction as determined in Table 12 and then applying Mr. Dillman's principle for the annual depreciation by using 1.48 per cent. of the reproduction cost new. In other words, that is the percentage which Mr. Dillman's annual depreciation allowance derived on a straight-line basis bore to the reproduction cost new. The tables have no particular significance except they are interesting in showing the effect of the use of the different methods of depreciation on a given base.

It is apparent from the foregoing tables that for the period under consideration the method used by the company's engineers is more favorable to the utility than that used by the engineers

for the city, although at another and earlier period the results would be reversed.

Specifically, the proposition reduces itself to this: It is more logical to consider that depreciation accruing in a structure follows a "straight line basis," *i. e.*, an average annual decrement over the probable life, or that it follows a compound interest curve.

Since "accrued depreciation" reflects not only physical deterioration but also obsolescence and inadequacy it should be readily apparent that it would be impossible to correlate it with any regular graph whether in the simple form of a straight line or the more involved consideration of an exponential curve; elements of this character follow no mathematical law. Since as a matter of expediency, it is necessary to adopt some symmetrical basis for these determinations, it would appear that the straight line method should appeal on account of its simplicity. There is as much reason to assume that the accrued depreciation follows a linear equation as an exponential, while if all the facts were known it would probably approximate neither.

It has been argued that depreciation accrues in a slight degree in the earlier stages of the life of a structure, accumulating rapidly towards the later years; this is a reversion to the "service value" of the structure; on the other hand it is a well known fact that if sale value of an individual structure is any measure, such value has a rapid drop immediately on installation. We might cite an automobile, a motor or a water-meter; irrespective of the efficiency, the mere fact that it has been in use even for a slight period detracts materially from its cost new. This is simply mentioned to show that there are so many elements entering into the consideration of depreciation that it is impossible to state with any degree of positiveness that it should follow either a curve or a straight line.

Now, if we take into consideration the practice of the company in the treatment of this element, it would appear that from 1907 they have been setting aside an annual amount of \$260,000 to the depreciation reserve; this amount is slightly less than the straight line allowance determined by Messrs. Dockweiler and

Dillman as applicable to the valuation of December 31, 1913; it is considerably in excess of the annual allowance determined by Mr. Hazen using a one per cent. of depreciated value. In other words, if a valuation of the structural properties is found lying between that of Mr. Hazen and those of Messrs. Dockweiler and Dillman, and an attempt be made to reconcile the past practice of the company with such valuation, it would be found to follow neither the straight line nor the higher sinking fund curves, but would possibly lie along an intermediate irregular line.

As to the suggested "rule of thumb" methods, i. e., first, a percentage of depreciated value; second, a percentage of gross income—these have little to commend themselves, except as convenient derived figures based on determinations made under some more logical method of investigation; that the depreciation allowance approximates 1% of the depreciated value of the structures, as advocated by Mr. Hazen, would seem to be more a matter of coincidence, assuming that all his premises are correct; as a matter of pure analysis it is difficult to conceive that an annual allowance should bear a constant percentage condition to a depreciated rather than a reproduction value.

As to the use of a percentage of gross income, there is no particular criticism on the procedure, as a device to reflect determined figures back through the preceding years in controversy; the percentage in the absolute means nothing, as it will fluctuate dependent on the findings as to valuation and annual allowance at the focal point, i. e., December 31, 1913, and on whether the gross revenue is reckoned on the inclusion or exclusion of revenue in excess of the ordinance; if, after a determination of the fundamentals, your Honor sees fit to use a derived percentage, functioned on gross revenue, as a short cut to obviate laboring calculations, it will probably result in no inequity to either side. We do most certainly object, however, to the use of any percentage or any figure of annual allowance which does not in its basic determination take into account the accrued depreciation in the valuation of the structure.

The burden of counsel's argument on depreciation has been

that the straight-line method, as used by our engineers, does not reflect the true present value of the properties, and, as a substitute, he proposes Mr. Hazen's and Mr. Metcalf's estimate of the actual physical condition, determined by inspection methods.

To the first charge that the straight-line method, as employed by our engineers, does not represent the present market value, or present physical condition, we shall enter a plea of confession and avoidance, and say that we do not know whether it does or not. It may and it may not.

To the second contention we enter an emphatic denial that any engineer, no matter how experienced he may be, can, by inspection of a few sections of pipe, or of long-lived structures such as dams and tunnels, form any accurate impression as to the true present worth of those structures, or their true present condition from the standpoint of depreciation. What Mr. Hazen says he did was to determine the percentage of condition of these structures. This can only mean one of two things: He either determined the present service value in the light of elapsed life of the structure and its physical appearance, or he had somewhere in his mind the probable life of the structure and determined its percentage condition by application of its elapsed life.

If he did the first of these two things he did not determine depreciated condition at all. He only reiterated under a new name the oft-repeated contention advanced by the public utilities of this country that the value for rate-fixing purposes should be service value.

If he did the second thing he came much nearer determining the true depreciation. But in that event his depreciation allowance and his physical condition must check. And we find by inspection of his method, and by his own admissions in the record, that they do not. For instance, by his inspection method and the application of 1 per cent of the depreciated value as an annual allowance, he obtains, as I have said, \$219,000 for the year 1913. But when it comes to his final schedule he says that the proper allowance should be based upon 8.45 per cent of the gross annual revenue and would amount for that year to \$284,000, if you include the

impounded money as a part of the gross revenue; what his justification for doing that is, inasmuch as that excess is the matter in controversy, I don't know.

THE MASTER—How did he get his 8.45%, Mr. Greene?

MR. GREENE—He got that by an inspection of the abandoned property of the Spring Valley Company and by taking as examples to check that four other plants which were the only four plants as to which he had complete depreciation records.

MR. SEARLS—He has not made any compensating deduction from his depreciated value of the plant. And we submit that, in justice to the consumers, the company cannot take \$70,000 of their money for a depreciation fund unless it was accounted for somewhere in the capital side of the ledger, unless, of course, the allowance were computed on a straight sinking fund basis, which is not the case here.

What counsel would have us do, and what he would have your Honor do, is to establish the most dangerous kind of a precedent. Is it true that the consumers are required to return in rates the company's investment by making up for the depreciation of it, but they are required to do no more than that. And if the courts once set the precedent of allowing these utility companies to figure their accrued depreciation on the basis of so-called inspections, and to determine their annual allowance on some other basis, with no protection whatever to the consumer except a vague promise that if they find the annual allowance is getting too large they will reduce it some day, the door is left wide open for every possible abuse of this privilege. The water company is very anxious to have an annual allowance with which to fortify itself against the inevitable obsolescence of portions of its plant, but it is not willing to concede for a moment that a true depreciation should be computed for this obsolescence feature until it is actually incurred, although it must be very obvious, from the standpoint of market value, the value of a structure which is in 90 per cent. physical condition, but which is going to obsolesce in 10 years, would be nothing like the figure which would result from an application of the physically accrued depreciation alone. It is true

that some of the complainant's structures scarcely depreciate physically at all; for instance, the tunnels. Yet, it is almost a certainty that, with the development of new sources of supply for San Francisco, and the requirement of larger conduits, new connections with the local storage system and new pipe-line routes, that many of the existing tunnels will be, sooner or later, abandoned. Our witnesses have taken this factor into account in estimating annual depreciation allowance. But they also insist that it shall be taken into account in estimating the accrued depreciation on the property, and very properly so. It is just as much an element affecting market value as physical depreciation itself. It does not, of course, affect present service value, and probably will not for many years. But the depreciation is there just the same, so much of that structure's life has elapsed. I submit that there is no more degree of speculation involved in estimating the probable life of that structure, with all these factors in mind, than there is in trying to estimate its percentage condition by Mr. Hazen's method.

It is not my contention that estimates of probable lives in a given locality should be made without inspection of the structures, and the record shows in this case that an inspection was made by all the engineering witnesses, and that actual conditions were taken into account so far as they could be. In this connection I commend to your Honor's attention the admitted long familiarity which Mr. Dockweiler has had with these structures, dating back some 12 or 13 years; and also his great familiarity with the history of their construction and service. In connection with his work of valuing other water companies Dockweiler gained first-hand observation as to the rates of depreciation of the various types of structures. Of course Mr. Hazen had all the records of the company and the information of its employees at his disposal, but he had no personal familiarity with the works prior to the year 1912-13.

It will be further noted, Mr. Dockweiler has not attempted to depreciate the concrete dams at Crystal Springs, or the earth-dam embankment, but has limited depreciation on these structures to the auxiliary structures. This is entirely in accordance with

Mr. Hazen's views. Dockweiler's life of 100 years for tunnels seems, on the whole, conservative, in view of the probable eventual obsolescence of most of these structures. On all the other items his tables of lives are as great or greater than those used by plaintiff's witnesses. That being the case, the application of the elapsed life to such probable lives for the purpose of determining present condition, cannot, in the long run, work any injustice. I have attempted to demonstrate in this argument, with the assistance of the accompanying tables, that in the long run justice is likely to be subserved by the use of the straight line as by the use of the curved line, and the chances of error are diminished through the elimination of the interest rate from consideration. Interest rates have varied very widely in the past, as is shown by Mr. Metcalf's tables, and they are just as apt to vary in the future. A serious variation in the sinking fund interest rates would totally disturb all the processes of depreciation by sinking-fund theories.

Mr. Metcalf does not, in the least, avoid the charge that he is, in effect, rating the property on reproduction new when he uses an equal-annual-payment method of computing his depreciation. The only effect of the use of that method is to subdivide the total depreciation and interest charges on a little different basis than would be used in a straight sinking-fund method. The total amount paid by the consumer is, or should be, the same.

I presume that complainant's anxiety with regard to actual conditions, as he calls it, is prompted largely by the thought that the valuation which your Honor finds upon these properties may eventually become a basis for sale, and that, in such event, the complainant ought to receive a value consonant with the actual condition. In the first place, I do not think that that consideration is one to which your Honor should give much attention.

MR. GREENE—We have not asked his Honor to, Mr. Searls.

MR. SEARLS—I am merely making a supposition, Mr. Greene, as a cause for your anxiety.

MR. GREENE—I never thought of it until you mentioned it, Mr. Searls, to be perfectly truthful.

MR. SEARLS—This is not a sale case; this is not the tribunal in which condemnation or sale values can be fixed. No one can say, at the present time, what the probable effect of the valuation reached here is going to be, or whether the complainant's properties will be sold for many years to come, in which latter event the percentage condition of today might very well have no application. In the second instance, notwithstanding complainant's argument, it seems to me that the actual value of the structure is just as likely to be their value recognized by straight-line depreciation as it is by direct inspection methods. And if, by the use of a straight-line depreciation allowance, the company is from this time forward returned annually a straight-line percentage of the reproduction value new, it will in all probability have a generous surplus in its depreciation fund by the time any sale takes place, and we can determine the date of valuation for such sale, whether or not a straight-line percentage of accrued depreciation at that time fits or does not fit actual conditions. It is certainly not a problem which should trouble either of us seriously in a rate-fixing proceeding.

Finally, I wish to impress upon your Honor the absurdity of counsel's contention that you should accept an annual depreciation allowance at approximately the sum reached by all the witnesses, and disregard the methods by which they reached that allowance. So far as the defendant's case is concerned, the annual depreciation allowance is inextricably tied with the accrued depreciation, and there is no justification in this record for your Honor assuming the annual allowance which our witnesses have made unless your Honor approves the methods by which they have arrived at it, and make corresponding deductions from the reproduction cost new. If you wish to disregard our testimony altogether, and accept complainant's point of view that the allowances in the present condition are independent considerations, a procedure which is unthinkable to my mind, that, of course, is your privilege. But such a decision should not rest upon the contention advanced by counsel that the witnesses are agreed, practically, upon the annual allowance. If you adopt a

sinking fund method, based on any lower valuation than that reached by complainant's witnesses, you must decrease the annual allowance proportionately. If you adopt a sinking-fund method, based upon defendant's valuations, you must decrease the annual allowance proportionately because our depreciation allowances have been computed on a straight-line basis. If you adopt a straight-line method, based upon complainant's valuations, you should increase the annual allowance proportionately because their annual allowance has been based, in general, upon sinking-fund calculations,—and, moreover, their rating base is much in excess of the one we have used. And if you adopt Mr. Hazen's rule of thumb methods for determining annual depreciation, I suppose you can do anything you want with the accrued depreciation.

Authorities on Depreciation.

I desire now to read from a few authorities among the many who have sustained the straight-line method of figuring depreciation, and, in doing so, I urge upon your Honor not to depart from the established path in which we have been moving on this subject until there is some more unprejudiced authority than the dissertations of public-utility engineers to justify such a radical step.

Counsel read to your Honor at some length from Mr. Floy's book on valuation, and in reply I shall read, briefly, from the work by Hammond V. Hayes on "Public Utilities, Their Cost New and Depreciation," a work published in 1913, the year as of which this valuation was made. I am reading on page 146, par. 106:

"Adoption of 'sinking fund' or 'straight line' method of making reserves in practical cases.—The discussion in the preceding sections of this chapter has been very largely theoretical and has been intended to present the fundamental principles involved in maintaining the capital value of the undertaking. When the practical case is presented to the management of a public utility as to which basis shall be adopted in making reserves for depreciation, the question

must be answered very largely by a decision as to whether the reserves for depreciation are to be invested in extensions to the plant or not. *If the reserves are to be invested in plant enlargements, then the straight-line method must be employed.* On the other hand, if the reserves for depreciation are invested in outside securities, then, as such funds have the benefit of interest fund accumulations, the use of a straight-line method would result in abnormally large sums being set aside, and, in consequence, the sinking-fund method is to be preferred.

“Straight Line Method.—The reason why the straight-line method should be employed, when the reserves for renewals are invested in plant, is apparent when the operation of the sinking-fund method is considered. This can be understood most readily by a consideration of a practical example. Let it be assumed that the plant of an undertaking had cost \$100,000—assuming zero salvage value—and that it had a mean life of 10 years. Let it also be assumed that the undertaking operating the plant is entitled to a return of eight per cent. Then, during each of the ten years, the gross income must be sufficient to pay taxes, to pay the operating expenses, to pay eight per cent. on the investment of \$100,000, and to pay to a reserve fund such an amount as will aggregate at the end of ten years the original investment. For the present example, let it be assumed that each increment to this fund has been invested each year in new plant needed and required by the public. If the sinking-fund method is employed in figuring reserves for renewals, the undertaking must pay not only the annuity but the interest on the sinking fund. If the straight-line method is employed, the increment to the reserve fund will be the original cost divided by the years of life, or \$10,000.”

Mr. Hayes then inserts a table showing the operation of this sum for each year of the life; I think it is unnecessary to include it here, as your Honor is very familiar with the differences in application.

“From this it is seen that, by the sinking-fund method, the sums of the payments to the reserves, for annuity and interest, during the early years of the life of the plant are less than they would be if the straight-line method was used, but, later on, the annual payments to the sinking fund become very much

larger, in the tenth year \$13,799 and \$10,000, respectively. The results of the two methods, however, are the same, in that, at the end of the life of the plant, there has been accumulated \$100,000 by both methods. In other words, there has been contributed by the public for the purpose of reserves \$100,000 by either method during the 10 years that the plant has been useful.

"When it is remembered that the plant is made up of a large number of units, which have been brought into service at different dates, and is composed of units of different lives, it will be appreciated that the sum of the increments for the reserves for each unit would be, not the amounts shown as the really total of the sinking-fund column, but rather figures approaching those shown in the straight-line method column. But even supposing that we were dealing only with a single plant unit; as the \$100,000, the entire original cost, must be recovered by the undertaking from the public, clearly it is simpler and more rational to make the payments uniform for each year than to set up an artificial method such as that of the sinking fund, wherein different amounts must be set aside each year. It is true that, in some cases, it is desirable to make the burden upon the public as light in the early years of the operation of an undertaking as possible, but, for most public utilities, such an argument has no force. Moreover, the inequality of the demands for depreciation reserves each year would indicate, at least theoretically, a necessity for an increasing or variable charge for the service or utility furnished.

"For the above reasons there seems to be no question but that, when reserves are used for needed and useful extensions of plant, the straight-line method of making reserves for depreciation should be employed."

It is the obvious fact that the logical place for investment of the depreciation reserve is in the plant itself, and if that procedure is to be followed, then Mr. Hazen connected with Mr. Hayes is an authority, at least, for the adoption of the straight-line method.

Another work, entitled "Principles of Depreciation," was published by Earl A. Saliers, Ph.D., of the Yale University Faculty, in 1915. He says, page 123 of this work:

"The Straight Line Method."

"The simplicity of this method of determining depreciation stamps it with the appearance of practicability. It is free from interest complications, and its employment does not require a knowledge of the logarithmic or any other method of finding roots and powers of numbers. *Speaking generally, there appears to be no reason why the straight-line method does not approximate actual depreciation as nearly as any of the complicated curves at times advocated, apparently on the assumption that actual depreciation finds a counterpart in the accuracy of their mathematical computations.*

"It is not meant, however, to recommend unconditionally the straight-line method. The question is one of expediency rather than accuracy, of expediency based on the principle that the interest of stockholders, bondholders, and the public must be diligently protected. To do this the procedure adopted should guarantee the return to the business through the rates charged, of an amount approximately equal to the expiration of plant values incident to the production of the commodity or service sold. It is axiomatic that depreciation is one of the costs of production, and hence a corresponding amount should be charged to gross income, and thus be retained to offset the exhaustion of capital."

Judge Farrington, in the 1903 case, reported in 192 Federal, used the straight-line method for figuring depreciation on the Spring Valley properties, thus placing his stamp of approval on the applicability of that method to the very case under hand,—

MR. GREENE—Mr. Searls, I wish to take issue with you on that statement that Judge Farrington adopted the straight-line method. I think you will find that he took certain portions of the physical structures and figured a basis of lives on a straight-line method as to those structures, and that he omitted any allowance as to the balance of the structures, and reached a depreciated allowance which is within \$1,000 or \$2,000 of what Mr. Metcalf describes as the proper depreciation for 1907. Judge Farrington adopted the straight-line method for all of those structures.

MR. SEARLS—Let me read what he says:

“The total depreciation to be deducted from the reproduction cost of structures is \$2,922,538. This I have ascertained by multiplying the annual depreciation of each structure for the number of years it has been in use, using original cost as the basis of calculation. In case of the cast-iron pipe, constituting the city distribution system, the result was obtained by ascertaining the average length of time the pipe laid each year had been in service. I have calculated depreciation only on wrought-iron pipe, wooden structures and the pumping plants. While reservoirs, concrete work, brickwork, tunnels, and excavation are undoubtedly subject to deterioration, I conclude the amount obtained is sufficient to fairly cover all loss resulting from this cause, except in a few special cases like the Crystal Springs upper dam, which originally cost \$219,476.61, and which I now value at \$50,000. The upper Pilarcitos dam originally cost about \$30,000, I value at \$10,000, and the Ocean View pump cost \$23,030.58, at \$10,000. These three items afford an additional depreciation of \$202,507.19.”

It seems to me that that method does indicate very clearly that Judge Farrington used the straight-line method of estimating his accrued depreciation, although he did—just as Mr. Dockweiler did—eliminate from consideration any depreciation on the concrete structures or dams. I think he also eliminated the tunnels, whereas Mr. Dockweiler included them at 100 years.

MR. GREENE—Do you appreciate that Mr. Dockweiler depreciated dams and that Judge Farrington did not? I know that Mr. Dillman did, and I am quite sure Mr. Dockweiler did, too.

MR. SEARLS—I think you are mistaken. The only structure in connection with the dams that Mr. Dockweiler figured any depreciation on was gate-houses, and so on.

MR. GREENE—Then I withdraw that. That is certainly true, though, as to Mr. Dillman.

MR. SEARLS—I think he included all the structures in his estimates; I think he allowed 200 years for dams. It makes little difference in the totals, though.

There are also decisions in this district and other districts wherein straight-line depreciation has been used. In *San Joaquin & Kings River Canal & Irrigation Co. vs. Stanislaus County*, 191 Fed., 875, a decision which was subsequently reversed by the Supreme Court of the United States upon the question of water right values, Judge Morrow says:

"The complainant claimed that a fair and reasonable estimate of the life of weirs, gates, bridges, buildings, and machinery and other perishable structures in complainant's plant was 33 years, that an annual allowance should be made for such depreciation, and, on the basis that reproduction of these structures would cost \$420,866.87, it is claimed that an annual allowance should be made of 1/33 of that sum, to-wit, \$12,748.08. The master found, as we have seen, that the cost of reproduction would be \$315,515.14. He also found from the testimony that the average life of the structures was 33 years. Dividing \$315,515.14 by 33 gives \$9,561.06 as the average annual depreciation fund by the master. Defendants objected to such an allowance on the ground that the complainant had entered in its maintenance account the expense incurred for repairs of structures, and that to allow complainant a sinking fund in addition would result in a double allowance for deterioration. The master was unable to distinguish between repairs and replacements in the maintenance account, and found the complainant at fault in not keeping a separate account for replacements, and accordingly made no specific allowance for depreciation. * * *

"It seems to me that \$9,561.06, the amount estimated by the master as the annual depreciation of the plant, should be specifically allowed, that there may be a clear understanding that the depreciation of the plant is provided for and allowed out of the earnings that the value of the property may be kept unimpaired by use."

It is very evident that depreciation in that case was computed on the straight-line basis and the straight-line annual allowance was approved by the Court.

In *People vs. Woodbury*, 203 N. Y., 231, also reported in 96 N. E., 420, decided October 17, 1911, the sinking fund plan

was also rejected by the New York Court of Appeals. The Judge who wrote the opinion thus expressed his own views:

"The courts below determined that the relator was entitled to make annual depreciation charges, amounting in the case of the borough of Manhattan to the sum of \$360,613.65, and in the case of the borough of the Bronx to the sum of \$37,435.67, for the purpose of creating a fund to provide for the depreciation of its various properties; upon which interest at 4%, compounded, would produce a sum, at the termination of the ascertained physical life of the several classes of property, equal to the cost of the particular property. While I am, personally, of the opinion that the creation of such an amortization fund furnishes the best rule for adoption in such a case as this, in working out the value of special franchises, the majority of my brethren entertain a different view. They think that the annual allowance for depreciation should be computed by dividing the values of the various kinds of tangible property by the number of years of their respective estimated physical lives, and that will be the opinion of the Court."

There is a recent decision in an English case, the *National Telephone Company Limited vs. His Majesty, the Postmaster-General*, 16 A. T. & T. Co., Com. L. 491, being a purchase case. Under the purchase agreement between the parties, the purchase price was to be based substantially upon the reproduction cost of the physical property, less depreciation. The Postmaster-General contended that the straight-line method should be applied, while the company urged the adoption of the sinking-fund method. The Court approved the straight-line method, saying:

"I come now to deal with the question of depreciation. It is admitted that the figure for construction cost has to be depreciated in view of the fact that the plant was not new at the moment of transfer, but was of varying ages. Two methods of depreciation have been put before us and two different ways of regarding the life of plant. The two methods have been described as the sinking-fund method, which has been put forward by the company, and the straight-line

method, which has been put forward by the Postmaster-General.

"The sinking-fund method is based upon the effect of compound interest; it takes the life of the plant and then ascertains the sum which, paid into a sinking fund at compound interest, would replace the cost at the end of the life, and it is suggested that if the amount in the sinking fund in any year of the life be deducted from the cost of the plant, the remainder will give you the value of the plant at that moment.

"I do not go into the rate of interest; it seems to be unnecessary for my purpose; it is evident that whatever the rate of interest, the value of plant ascertained by this method will be much greater in the earlier years than in the later years by reason of the increasing rate of growth of the fund due to the fact that it is accumulating at compound interest. This method may be, and I think is, a proper method to adopt in a going concern, especially where revenue is largely used for capital purposes. In such a case it may be perfectly legitimate in estimating the value of plant before deciding whether to scrap it and substitute newer or more powerful plant, to adopt this method of calculation in order to see whether it is economical or even profitable to scrap the old plant. This seems to me to be purely a revenue question and to have nothing to do directly with the value of the plant as between a vendor and vendee. It was admitted by the very eminent witnesses called for the company upon this point that this method had never, in their experience, been applied as between buyer and a seller. I admit that this method will give you a perfectly correct arithmetical result, but it does not take into consideration those matters which properly affect the mind of a buyer. The prudent buyer discounts every risk. The past has happened and is certain; the future is not. It is true that we have no cautious buyer to deal with here, but we have no right to take chances that he would not. We can no more look into the future and determine its events by arithmetic than he could. It may have a thousand vicissitudes beyond our ken, and we are bound to have regard to the fact that we are engaged in a valuation between a buyer and a seller. I come to the conclusion, therefore, that the

Postmaster-General's method of depreciation, which is the ordinary or straight-line method, is that which should be applied. In this method the value is reduced in the ratio which the age bears to the life of the plant."

Sir James Woodhouse, in a supplemental opinion, comes to the same conclusions (at pages 538-9):

"The next important point is by what method is the value to be calculated. Is it by the 'sinking-fund' method on the basis of compound interest, as contended for by the company, or are we to adopt what is known as the 'straight-line' method, in which the value is reduced in the ratio which age bears to the life of the plant, which is the basis of the Post Office. I have no hesitation in adopting the latter. The former seems to be wholly inapplicable to a case between a buyer and a seller, and not one of the company's experienced witnesses have ever known it so applied in any case of sale of a commercial undertaking. The elements of constancy and certainty both as to period and income which are essential to the proper application of the sinking-fund method are non-existent in the case under consideration. It may, no doubt, be right, as applied to the case of an annuity or the valuation of a leasehold interest, but to apply a sinking fund to depreciate plant in a commercial undertaking involves too great an element of speculation, and would operate, if a miscalculation were made as to length of life, very unjustly in practice. No doubt it is true that the straight-line method also is not free from some element of risk, but there is this difference, so well exemplified by Sir William Peat, that by that method both parties would lose the same or gain the same."

I don't know what more can be said on this depreciation question. It is obviously one that is far from being settled by any judicial authority. The more I have studied it, the more it appears to me you cannot determine by any particular method an annual allowance or an accrued depreciation which from year to year will represent the true condition of the property. If you throw the door wide open by saying that the estimates of engineers as to actual conditions shall be adopted, that in the mean-

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TABLE 15.

SUMMARIZED COMPARISON OF GROSS REPRODUCTION COST ESTIMATES OF INVENTORIED STRUCTURES UNDER THE MAJOR GROUPS DISCUSSED IN EVIDENCE AND IN JOINT EXHIBITS SUBMITTED, WITH SUMMARIZED FIGURES COVERING STRUCTURES NOT DISCUSSED, WITH OVERHEAD AND INTEREST-DURING-CONSTRUCTION ALLOWANCES AS OF DECEMBER 31, 1913.

NOTE:—Corrections have been made herein for items duplicated in the lists originally submitted. The partial estimates of other engineers are not shown in this table.

STRUCTURES	Allen Hazen	J. H. Dockweiler xx	Geo. L. Dillman	N. Randall Ellis	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)
1. Wrought Iron Pipe (outside of city).....	\$2,413,059.	\$2,511,095.	\$2,544,179.	\$2,880,956.	Excluding Wrought Iron Pipe Included in Joint Exhibits on Pumping Sta.
2. Earthen Dams and Flumes.....	1,252,586.	781,446.	836,056.	1,010,777.	Excluding Buildings in Joint Exhibits but including flume lumber in place (\$183,000 in Joint Exhibit "Buildings and Flume Lumber")
3. Tunnels.....	1,124,095.	833,963.	650,183.	835,822.	(Lippincott \$1,100,757.)
4. Buildings.....	7,152,310.	1,147,452.	151,299.	* 150,000.	Excluding Buildings, \$82,430. covered in Joint Exhibits of Buildings.
5. Pumping Stations (Entire System).....	1,102,119.	1,039,605.	1,120,311.	* 1,092,570.	Excluding Bldgs. in Joint Ex. & Booster Pump Sta.
6. Crystal Springs Con. Dam.....	1,754,176.	1,195,493.	1,320,760.	1,298,146.	
7. Crystal Spgs. Upper Dam.....	261,300.	184,283.	171,143.	209,459.	Excl. bldgs. in Joint Ex.
8. Sand Filter Beds.....	393,072.	267,800.	234,083.	303,196.	" " " " "
9. Sand Filter Bed Bldgs.....	5,423.	5,758.	150.	3,819.	" " " " "
10. Sluice Aqueduct.....	93,603.	78,585.	93,556.	71,989.	
11. Submarine Pipes.....	450,695.	321,582.	305,674.	325,167.	
12. Roads, Fences, Electric Transmission Lines & Ravenswood Wells	307,674.	338,636.	252,221.	* 276,000.	
13. Lake Merced Supply & Discharge Pipes to Pumps.....	214,834.	148,956.	173,770.	177,718.	Pleasanton Ranch House Fences.
14. Lake Merced Supply & Discharge Pipes to Pumps.....	103,093.	96,607.	89,586.	110,230.	Excluding Tunnels.
15. 30" Conduit from Ocean View to Central Pumps.....	21,000.	28,745.	Not Valued.	50,227.	
16. Lake Honda Supply Main.....	169,452.	80,892.	89,928.	102,936.	Excluding Tunnels.
17. 20" Central Pumps Force Main.....	37,731.	34,778.	36,456.	47,696.	
18. City Reservoirs.....	865,817.	594,273.	652,906.	692,238.	
City Distribution Pipe System:					
a. Scrap Iron.....	189,913.	146,713.	142,743.	* 140,000.	
b. Cast Iron.....	4,048,411.	3,772,989.	4,041,583.	* 4,013,000.	
c. Wrought Iron.....	502,224.	327,299.	344,803.	418,646.	
d. Existing Pavements.....	1,391,850.	977,893.	1,392,631.	* 1,319,000.	
e. Tunnels.....	11,966.	7,556.	6,434.	7,556.	Excluding Bernal Tunnel.
f. Pipe in Tunnels.....	24,459.	15,269.	14,757.	15,551.	
g. Trestles.....	9,098.	9,518.	8,904.	* 9,000.	
h. Cast Iron Pipe on Trestles.....	Included in C. I. Pipe above.				
i. Wrought Iron Pipe on Trestles.....	15,405.	9,441.	9,183.	9,581.	
j. Gate Valves & Boxes (C.I.P.).....	130,276.	173,790.	160,703.	* 148,000.	
k. " " (W.I.P.).....	6,565.	7,775.	7,650.	* 7,220.	
l. Stop Cocks and Boxes.....	2,657.	2,197.	1,444.	* 2,000.	
m. Check Valves and Boxes.....	2,836.	1,895.	1,712.	* 2,600.	
n. Air Valves & Boxes (C.I.P.).....	Omitted.	1,559.	1,470.	* 1,400.	
o. Air Valves & Boxes (W.I.P.).....	"	286.	406.	* 410.	
p. Blow offs (W. I. Pipe).....	"	676.	1,241.	* 1,070.	
q. Motors.....	382,907.	314,607.	296,033.	* 266,000.	
r. Services.....	92,786.	110,117.	244,521.	* 96,000.	
19. Total City Distribution System.....	\$6,811,303.	\$5,879,680.	\$6,676,118.	\$6,557,031.	Excluding Bernal Tunnel.
20. TOTAL.....	18,573,732.	11,561,829.	15,398,389.	16,187,180.	
21. Calaveras Dam.....	554,113.	539,898.	** (\$59,828.)	539,828.	
22. Structure Values not discussed in Detail in Evidence.....	408,665.	344,478.	474,192.	381,693.	Of these amounts the Pleasanton Ranch House* cover respectively \$170,141; \$129,121; \$198,797. Note that Dockweiler erroneously omitted to value the hop ranch bldgs.
23. TOTAL.....	19,496,110.	13,449,545.	16,412,409.	17,109,601.	
24. (X) Add to Hazen (San Mateo Screen House).....	+ 984.				
25. (X) Add to Hazen (Belmont Pumps).....	+ 4,600.				
26. Add to Dillman (Pleasanton C. P.).....			+ 20,000.		Included in Dillman's Grand Total.
27. Add to Dillman (San Andreas P. L.).....			+ 100.		Error in addition in Dillman's Inventory.
28. Add to Dillman (Sand Filter Bed Bldg.).....			+ 200.		Erroneously omitted from Bldg. Schedule.
29. Deduct from Dillman (Stone P. Aqu.).....			- 175.		Included in Bldg. Schedule owing to error in Structure numbers, structure 15 being omitted in Dillman's Inventory.)
	\$19,501,694.	\$15,449,545.	\$16,432,534.	\$17,109,601.	
30. Deduct from Dillman (Alameda P. L.).....			- 194.		(See note below)
31. Grand Totals, excluding Overhead and Interest-During-Construction.....	19,501,694.	15,449,545.	16,432,340.	17,109,601.	Excludes Stock on Hand Hazen, \$40,250.
32. Overhead & Interest.....	28,564,546,488.	21,964,332,450.	16,364,267,871.	20,564,453,800.	Dockweiler, \$311,740. Excluded by Dillman; respectively agreed to at \$401,350.
33. Total Reproduction Cost.....	25,118,182.	18,822,995.	19,110,811.	20,520,801.	
34. Accrued Depreciation.....	2,197,455.	5,049,041.	5,150,277.	5,594,286.	
35. Present Value.....	9,995,727.	13,783,954.	15,969,574.	14,929,517.	

xx Corrections subtracted in Dockweiler made herein. Note also his failure to value hop ranch bldgs. Correction for error of \$95 made in figures submitted by him as Dillman's.

* Dockweiler's and Dillman's figures for "Buildings" (\$17,656.) and (\$17,299.) are too high by \$1,114 and \$1,761, respectively, when compared with the "Building" Schedule totals, the reason being that when one did not appraise the buildings separately the other's figure was assumed to apply for comparison purposes only, but was not added in the total. In the "Building" Schedule.

(*) Amount of \$400.00 due to revision of Belmont Pump appraisal after the "Pump" Schedule was completed. Dillman allows \$25. for Structure 30. Dockweiler's figure of \$219. was assumed to apply for "Building" and was included at that amount (\$219.). Hence, Dillman's total is too high by \$219. - \$25. = \$194.

xx Dockweiler's cost inserted.

Note: Agreed allowance for stock on hand less depreciation \$289,940.

time an annual allowance based on a percentage of gross revenue or a percentage of depreciated value, or some method which apparently will enable the company to make replacements satisfactorily shall be adopted, it seems to me it establishes a very dangerous precedent because, as Mr. Hazen says, we don't know enough yet about the history of water-works properties to determine accurately what is or what is not going to happen. If you once cut loose from the compensating relation between annual allowance and accrued depreciation there is a very wide opportunity for the consumers being charged excessive sums for annual depreciation without being correspondingly compensated in the depreciated value on which they are required to pay a return. That is also a thought which led me during the trial of the case to suggest that perhaps original cost was as satisfactory a basis for computation as any, because that would not fluctuate from year to year and it would insure the return of sums which the company originally invested.

THE MASTER—If you wish the original cost basis you consistently would not deduct anything for depreciation at all; you would have to give an annual allowance, possibly.

MR. SEARLS—You would if you used the straight-line method, wouldn't you? It would return in just the same manner to the company at the end of the structural life. I at least have Judge Farrington to support me in that practice.

I include at the close of this discussion on depreciation a table showing the relative depreciated values of the plant, reproduction cost new without overhead and with overhead for the various witnesses. Mr. Greene presented one, but he did not include Mr. Ellis' summary of the testimony of certain other witnesses, in addition to Messrs. Dillman and Dockweiler.

IV. REAL ESTATE VALUATION.

General Considerations.

In discussing the question of the value of the real estate owned by complainant, I shall address myself first solely to the question of values, leaving discussion of the utility of the various properties for consideration in its proper place. In making this discussion of values, I do not wish to be considered as in any way waiving the defendants' objections to the inclusion in the appraisal of any portions of the properties which our witnesses have testified to be not in use. I take it that in deciding this case your Honor is likely to find a valuation for each of the several groups of properties, so that if any of your findings as to the utility should be changed upon appeal by either party, the proper basis will exist for including or excluding such properties in making up the valuation of the whole.

As a preliminary to the discussion of the value of the various groups of properties which I propose to make in most general terms, it seems pertinent to examine a little more closely the bases which have been afforded by the decisions of the courts and commissions for the valuation of public utility real estate in general for rate-fixing purposes. In this connection I desire to note, first, that it is in connection with the valuation of real estate that the question of present value as opposed to original investment became most acute. This is particularly true in the case of a water company where the holdings of real estate constitute such a large part of the plant.

An examination of the court decisions, so far as I have been able to make it, indicates that the rule laid down in the Minnesota rate cases by the United States Supreme Court has been pretty generally accepted to date by all of the courts of the country. That rule stated in the language of the Court is that the "company would certainly have no grounds for complaint if it were allowed a value of these lands equal to the fair average market value of similar land in the vicinity without additions by the use of multiples or to cover hypothetical outlays." In other words, that in valuing the land of a public utility for rate-fixing purposes, we are

to value it so far as possible as if it were not impressed with a public use.

I suppose that the Court was largely influenced by the thought that the appreciation of real estate value would, as a rule, compensate for the overhead charges which might have been originally incurred in the acquisition. The principle is that on the one hand, that the company is entitled to earn a return on value at least as great as its value for other purposes, and that on the other hand, considerations of the logical circle prevent a valuation as part of a utility, based upon the earnings of the property under impress of the public use. I suppose that if you could value public utility properties as a whole by the comparative sales method, this last objection might be obliterated, but, unfortunately, it is impossible to obtain such a thing as a going market price for water-bearing lands, or rights-of-way, or reservoirs, or other real estate peculiar to a water works. The only market values we have are those based on real estate uses. The price which a water company would be willing to pay for a reservoir or a right-of-way depends so much upon the peculiar needs and requirements of that company that it does not seem possible to establish a going market value for such property. What might be a perfectly good reservoir site for one company would be wholly impossible to another one, and the same rule would apply to watershed land and rights-of-way.

I have been speaking of market values of water supply units as a whole, looking at the properties as a part of the water system. Your Honor will recall that in the last case an attempt was made to appraise these properties as water-bearing properties, and Judge Farrington in his decision reached some conclusion that the watershed land could be averaged at \$100 an acre and the reservoir land at \$1000 an acre; there seems to have been no tangible basis for that, except expert opinion; it certainly has not the sanction of the Supreme Court.

It is, of course, possible to obtain some basis for comparison by taking the original cost of the various tracts which go to compose a watershed or a reservoir or a right-of-way and to ascertain

in a general way the ratio which the cost of acquiring these lands originally bore to the cost of similar lands not available for water uses, but this again is more theoretically than practically an aid to the appraiser. Even if some sort of an average factor were determined from the original experience of the company, there is no reason for saying that after years have elapsed and the value of adjacent land has increased that the same factor would apply. Let me illustrate.

I can conceive of a tract of land having special adaptability for watershed or reservoir use and situated so far from the centers of business that its value as real estate would be inconsiderable, while the price which any water company would be willing to pay for it, in view of its economic adaptability to water supply purposes, might be higher than its real estate value. Suppose, however, that the radii of the business centers and their residential suburbs grow and extend, transportation facilities increase, roads and highways are improved, automobile traffic is developed to a high state of utility. Our piece of real estate becomes suddenly or gradually invested with a considerable utility and desirability for real estate purposes. In conjunction with all the adjoining real estate, its value in the market increases many fold. Does it necessarily follow that its value for water supply purposes increases in like measure; that the factor of relation between its former value for water supply purposes and its real estate value remains the same? What possible justification is there for drawing such a conclusion? The chances are ten to one that the economic adaptability for the tract of land for water supply purposes has remained the same or practically so. It costs just as much to collect, transport and deliver the water from that tract of land to the urban consumer as it ever did. The only thing that would justify an assumption that its value from the water supply standpoint is increased would be an increase in the net revenue which that water supply may have produced, derived either through higher rates or lower expenses of operation, factors which clearly have no ascertainable arithmetic relation to the increase in realty values.

I suppose that considerations of this kind led the Supreme Court in the Minnesota rate case to rule against the application of any class of factors in determining the present value of railroad rights-of-way.

In recent years there has been quite a little thought given to this question of real estate appreciation. Commissioner Thelen, in a recent valuation of the Tonopah and Tidewater R. R. Company, reported in 3 Cal. R. R. Commission Reports, under date of July 29, 1913, says:

"The unearned increment of land is growing so rapidly that if public utilities in rate-fixing inquiries were allowed not merely the fair, average market value of similar lands in the vicinity, including the unearned increment, but also multiples in addition thereto, rates might soon go so high that it would be impossible for the public to pay them. It may well be that in rate-fixing inquiries which may hereafter come before rate-fixing bodies, both State and national, justice to the public may demand that the basis of return on real property shall be less even than the 'fair average market value of similar land in the vicinity,' including the unearned increment. If we bear clearly in mind the distinction between a fact, namely, the cost of reproducing real estate and the entirely distinct matter of ascertaining the proper basis for fixing rates in any particular case, we shall not be led astray."

The Commissioner uses the fair average market value of similar land in the vicinity as the measure of his valuation in that particular case, and his statement which I have just read is practically dictum, but it indicates the thought which is being given to the propriety of making original cost rather than appreciated value the basis for rate-making. The Commissioner reiterated these views in the decision on application of the North Coast Water Company to increase its rate, 3 Cal. R. R. C., Dec. 3, 1913.

There is a great deal to be said in favor of the views which Judge Van Fleet expressed in San Diego Water case, 118 Cal., 556, although I am aware that for the present the United States Supreme Court has settled the rule that present appreciated value

must be the measure. The language to which I refer from Judge Van Fleet was:

"The law does not intend that this business shall be a speculation in which the water company or the consumers shall respectively win or lose upon the casting of a die, or upon the equally unproductible fluctuations of the markets. For the money which the company has expended for the public benefit, it is to receive a reasonable and no more than a reasonable reward. It is to be paid according to what it has done and not according to what others might conceivably do."

And again, in the decision by the Interstate Commerce Commission on the advances in rates on the Western Railroads, reported in 20 I. C. C. R., 307, Franklin K. Lane, at that time Interstate Commerce Commissioner, after discussing the enormous appreciation in the value of railroad land and the lack of an authoritative determination as to what constitutes fair value, says:

"Perhaps the nearest approximation to the fair standard is that of bona fide investment—the sacrifice made by the owners of the property . . . considering as a part of the investment any shortage of return that there may be in the early years of the enterprise."

These last citations, of course, have no weight with your Honor in view of the recent rulings of the United States Supreme Court, but I give them merely to show that there is still a very creditable class of thinkers who believe that there is much to be said in favor of the original cost theory. A more logical and equitable solution of the problem from the standpoint of the public seems to me to be voiced in the suggestion that the appreciation should be considered in determining the fair rate of return and the question of development expense.

Mr. Whitten, in the second volume of his work on valuation, pages 936 to 938, discusses the adaptability of this procedure. He says:

"If, however, this additional source of income was relied upon by the original investors, it necessarily served to reduce

the rate of return adequate to produce such investment. The determination of fair value is only one step in the process of determining a reasonable rate of charge. . . . Increments and profits of every kind enjoyed by the company must necessarily be considered a part of the total compensation that the company received from the public. In so far as there are increments and profits arising from increase in land values, it is clear that such increment and profits should in a rate proceeding be considered either as income or as an offset in fixing the rate of return."

I am not raising any question in this argument but that appreciation in realty values should be allowed in determining the rating basis. I shall, however, urge in my discussion of fair rate of return that this enormous appreciation in the case of company's properties should be considered by your Honor in determining this rate. It is worthy of note that the Internal Revenue Department insists that appreciation on unsold property should be included in the income of the corporation subject to the special excise tax. (Treasury Decisions, Dec. 21, 1911, Vol. 21, No. 25, par. 43.)

THE MASTER—That is when the property is sold, is it not?

MR. SEARLS—Yes, that is the date at which the appreciation can be determined.

1. Market Value.

The best we can do then in getting at the question is to allow the market value of the property as real estate and in allowing that we do not in one sense disregard the value of the land for water supply purposes because that is really one of the elements that enters into its market value, in some cases directly, in other cases indirectly. We find in this case and I presume we should find in almost any case that the company has built up its realty holdings through a large number of individual purchases. Each of the original individual owners in selling to the company disposed of all the rights he had to the land; the right to take water away from it if there was water upon it; the right to store

water upon it if it were available for that purpose; the right to lay pipes in it if it were available for rights-of-way and in so disposing of his land to the company, it is not unreasonable to assume that he must have had all these possible uses in view. There may have been a few isolated cases where the owners of individual tracts did not know the uses to which they were to be put, but I find no evidence in this regard that such was the case, as a general proposition in the history of the Spring Valley purchases. In the absence of any such affirmative showing by the complainant, it would seem to me reasonable to assume that the people who sold to Spring Valley knew exactly what they were doing. Indeed, there is ample evidence in the record to support this latter view. There is no showing by the complainant that in the original purchase of these properties, a price in excess of the market value of land in that particular locality was paid for the land.

I might except the Drinkhouse purchase from this last statement, but even with respect to that purchase, there is no showing that the company ever pursued its condemnation suit to an ultimate conclusion. Having been overruled by the Supreme Court on the single proposition that the value of the land for reservoir purposes must be considered, as well as its value for other purposes, they let their deposit in the trial court be paid over to Drinkhouse without putting up a fight before a jury to show what the market value of the land for all purposes was. This can hardly be taken as a fair example for that reason.

Again, all these purchases which the Spring Valley Water Company has made on the peninsula and elsewhere have had their effect on the market value of land in the vicinity, and have helped to increase the values in some instances, and these increased values are again reflected in figuring the reproduction value of the real estate today. There is no reason, as I have shown, for assuming that the special value for public utility purposes is any greater than its real estate value. In many cases there are very definite reasons for assuming that it must be less, and I may cite the Merced Lands as an example of the latter case. Counsel has suggested at one time or another during the trial

that this land was available for all the real estate uses and in addition to that for a public utility use, and that therefore its value for public utility purposes must be at least as great and possibly much greater than its real estate value. It is not *additional* value, it is an *alternate* value, which is a very different thing.

The company cannot hold its lands for watershed purposes or reservoir purposes and make use of them for real estate purposes also; secondly, if they had value for water supply purposes, they have no value for real estate purposes, and on that line of reasoning, there is no justification for using realty value as a measure. It is only because the Supreme Court has laid down for us the rule that alternative use is to be the basis of our value that warrants us in using this method of appraisal at all, and as I suggested, the probable reasons for this rule are that if we exclude a valuation for public utility purposes based upon the earnings of the property from that use, the only measure left is the real estate value.

I trust that I have made my thoughts clear to your Honor on this subject. It is rather difficult to express one's views clearly on a subject which involves so many conflicts of hypotheses. It is on this line of reasoning then that I am led to say that when our real estate appraisers went out on these lands, viewed them as they lay, took into consideration their topography, their productivity, their residential, agricultural or pastoral advantages, their proximity to water for either scenic or utilitarian purposes, their accessibility to markets and business centers, their climatic advantages and disadvantages and all the other factors which go to make up an intelligent real estate appraisal, and as a result of this review coupled with the investigation of comparative sales, reached figures which in their opinion constitute the fair market value of these lands as of December 31, 1913, there is nothing to be added for special alternative uses. When I come to discuss the question of water rights, I shall contend that this valuation as set forth in the record in this case covers all that it is necessary for your Honor to find in the valuation of these

watershed and reservoir lands and every right which is strictly appurtenant to them and that would pass with an absolute conveyance of them. In other words that if an appraiser has valued a tract of land with a stream upon it, or a spring upon it, or a lake upon it, and has taken into consideration the fact that that land had this water available for whatever use the owner might see fit to put it to no matter who the owner was, that there is no justification in law or equity for finding a separate additional value for the water that sprung from or flowed past or lapped the shores of that particular land merely because the Spring Valley Water Company elected to abandon the real estate use of the property and divert the water alone for sale in San Francisco.

The term "real estate" in other words means something more than the constituent elements of the soil. It means rocks beneath, the sky above, the trees upon it and the right to take and use for every lawful purpose those things which are a part of or appurtenant to the soil.

I have made these preliminary observations at some length because I feel that unless I impress upon your Honor's mind the point of view which seems to me the most correct and most nearly logical one from which to handle this real estate problem, the rest of my argument may not be thoroughly understood.

I pass now to a consideration of the three general subdivisions of the company's real estate, that is, San Francisco, San Mateo and Alameda properties, which I shall discuss in the order named, and will follow each with a discussion of the utility so far as this case is concerned. I will then take up the question of reservoir and water-right values.

2. San Francisco Real Estate.

As all the tracts in San Francisco except the Merced tract were valued at the agreed figures of Messrs. Baldwin and Paschel, I need only allude to that fact in passing to a discussion of the Lake Merced property.

THE MASTER—Did you say you would discuss the question of exclusions of property along with the question of value?

MR. SEARLS—Yes, your Honor.

THE MASTER—And I understand that on the San Francisco properties, other than Lake Merced, there are no exclusions claimed by the city?

MR. SEARLS—There are no disputes, I believe, in San Francisco, now that I have conceded the utility of the Francisco Street reservoir tract.

3. Lake Merced Properties.

These properties were valued for the city by Messrs. Paschel and Martin, and for the company by Messrs. Baldwin and McDuffie. Discussion as to their utility was furnished by Messrs. Hazen, Metcalf and Eastman for the company, and by Messrs. O'Shaughnessy and Dillman for the city.

a. Comparative Valuations.

The Lake Merced situation is so complex that it is difficult to discuss its valuation without considering the question of its utility concurrently. Taken purely as a real estate proposition there is approximately two millions of dollars between the figures placed upon these lands by Messrs. Baldwin and McDuffie and Messrs. Paschel and Martin. In making up his total valuation for rate-fixing purposes, however, Mr. Hazen reduces the valuation of the Lake Merced lands to \$4,362,000 for the years in controversy (p. 8343). This value is approximately \$700,000 lower than the value placed upon the ranch as a whole by Mr. Paschel for the defendants. It is about three million lower than the value reached by Messrs. Baldwin and McDuffie, and approximately checks the valuation made by Mr. Martin. Turning, however, to the valuation of the portion of the land which the city concedes to be used and useful, we have Mr. Paschel's valuation total of \$1,321,936, which is exactly \$64 less than the total valuation which Mr. Hazen places on the Merced lands as a permanent part of the water-works supply system, (8339) and about twice the original cost of all the lands in the rancho as shown by Exhibit 135.

As will appear when I come to discuss Mr. O'Shaughnessy's testimony, the city does not concede that the value of the Lake Merced properties for water-supply purposes is any greater now than it ever will be, and if our claimed deduction of the part of this ranch not in use be allowed by your Honor you have, in the valuations made by Messrs. Hazen and Paschel, to which I have just alluded, a practical coincidence which would eliminate the necessity of further discussion.

However, for the present I am going to discuss merely the valuation of the ranch as a whole without regard to its utility or value for water-supply purposes.

THE MASTER—Do you mean by that that if you leave out all the outside portion of the rancho which you claim is not in use and value the lakes and the 800 odd acres within, that Mr. Paschel's figure for that smaller portion would be the same as Mr. Hazen's for the whole rancho?

MR. SEARLS—It would be the same, practically, as the figure which Mr. Hazen adopts as the permanent value of the rancho—not the figure which he includes in his appraisal, because he says that the rancho for the years in controversy has a much greater value than it will have when it is relegated to the position of a reserve.

THE MASTER—Well, when it is relegated to the position of a reserve Mr. Hazen excludes that outside acreage.

MR. SEARLS—He does not say just what he does. He uses a total valuation of the land only of \$1,384,000, and something else for structures, which make up a total of about a million and a half.

MR. GREENE—He said that as soon as the additional supply came in and the daily use of Merced was given up, that he would agree with Mr. O'Shaughnessy as to the acreage which should be excluded from any rating base.

THE MASTER—I think that is right, Mr. Searls. Then it is not a fact that Mr. Hazen's adopted value for the Lake Merced property from which he excluded nothing is the same as Mr.

Paschel's valuation of the smaller portion contended by the city to be in use.

MR. SEARLS—Oh, no; I did not intend to convey that idea.

THE MASTER—I was wondering why we were worrying about it, then.

MR. SEARLS—I mentioned it because if you accept our contention that only 800 acres should be allowed, you would be in effect placing the Lake Merced properties in the category in which Mr. Hazen places them for permanent use, they would have about the same value.

THE MASTER—I understand your point.

b. Real Estate Values.

MR. SEARLS—There has been a good deal of testimony by Messrs. Baldwin and McDuffie which I am not going to discuss in detail, going to show the magnificent future which is in store for all the property within the city limits west of Twin Peaks, from a residential point of view. They emphasize the growing tendency of city dwellers to seek restricted residential subdivisions and point out that, in this portion of the city alone can such restricted subdivisions be found or laid out in the future. They point, with justifiable pride, to their own work on the purchase, subdivision and improvement of the Residential Development Company tract, some 728 acres. They call attention to the Ingleside Terraces Subdivision, the Parkside District, Balboa Terrace, and other new-formed districts in this section.

From this premise they pass to the conclusion that, within a relatively few years, the entire Merced Ranch might be split up into residential tracts, laid out, improved, and sold off. They dwell at length upon the advantages of this land from the real estate point of view, its topographical accessibility, scenic features, and so forth. It is easy and natural, perhaps, for one who has personal interests in this district, to let one's self be carried away with enthusiasm for this roseate future. It is only when we come to consider the sordid present, the cold statistics of San Francisco real estate history, the probabilities rather

than the possibilities, that an unbiased judgment can be formed of the true value of these lands for the years in litigation. I shall be surprised if your Honor does not find upon examination of the testimony that Messrs. Paschel and Martin are much better qualified to pass with a cool and unbiased judgment on this question of value than the complainant's witnesses, both of whom are intimately and personally interested in the enhancement of values in this district—and I do not mean that statement in any offensive sense at all.

THE MASTER—You mean that when a man owns land he ought to think it is worth more.

MR. SEARLS—I mean that when a man has practically all of his money, or at least a great part of his money tied up in an investment in a given district and feels that he is going to make a lot of money out of it, his point of view rather develops along optimistic rather than conservative lines in regard to that neighborhood.

I call your Honor's attention to the cold facts set forth in Mr. Paschel's testimony, pages 4075 et seq., of the record, where he notes that the Parkside Realty Company, in 13 years, got less than 200 houses on their tract; the Ingleside Terraces, purchased in 1911, something less than 60 houses; St. Francis Wood, purchased in 1912, about 18 or 20; and Forest Hill, opened up in the same year, something around 30. If we exclude the Parkside and Ingleside subdivisions for the moment there is an uncontradicted showing that, even up to the time of the trial of this case, there were less than 100 lots built on in the entire 720 acres of the Residential subdivision. The witness goes on to show that, following the same lines of development, it would be over 30 years before there is a possibility of the 1325 acres of the Merced Tract lying north of the Lakes being absorbed. He supports this showing by reference to maps of San Francisco which are in evidence as Defendant's Exhibits 88 and 89, showing the rate of development of the rest of the city of San Francisco, and the length of time that it took to develop it. And, on the basis of this historical development, he states that if we

should grow twice as fast in the next period it would take 25 or 30 years to fill up the McDuffie tract A of the Lake Merced lands.

Mr. McDuffie's testimony shows that of the 180 odd acres which the St. Francis Wood people purchased in April, 1912, 60 acres only had been subdivided and improved up to the date of the trial, and that of those 60 acres which were subdivided into 268 lots about 135, or just about one-half, had been sold. In other words, approximately one-sixth of their property had been disposed of in three years, and that probably the most desirable one-sixth. At that rate it would be 18 years before St. Francis Wood alone could be sold off. Now, with these prospects in view in the year 1913, what is to be the measure of the fair market value for which the Lake Merced Ranch Lands could have been sold, as a whole, in that year? Would it under any circumstances exceed the prices which were paid for the lands on the north side of Sloat Boulevard, and the east side of the Junipero Serra? There is, certainly, no justification for saying that it would. If your Honor will look at Mr. Paschel's valuation you will find that it almost checks with the prices that were paid for the similar properties. Take merely, for example, his parcel 1, on Exhibit 92, which contains the best part of the Merced Ranch. On this he places a valuation of \$4,000 an acre in December, 1913. This is twice the price which the Residential Development Company paid the Sutros for the 728 acres north of this in 1911. It is one and a half times the amount that the West Gate Park Co. paid for the St. Francis Wood Tract in 1912. It is one and a half times the price which the Forest Hill Realty Co. paid for their tract in the same year. It equals the price on the basis of which Claremont Court was assigned to its present owners on partition. It equals the price at which Mr. McDuffie testified Mr. Titus sold out his interest in St. Francis Wood in the latter part of 1912. And it is more than one and a half times the price which the Urban Realty Company paid for Ingleside Terraces in 1910.

MR. McCUTCHEN—Mr. Searls, would you mind an interruption so that I could ask you a question?

MR. SEARLS—No, certainly not.

MR. McCUTCHEN—What do you attribute that very marked increase to, Mr. Searls, in that very short time?

MR. SEARLS—The development of the district.

MR. McCUTCHEN—Don't you think that development will go on as the transportation facilities increase?

MR. SEARLS—I don't think it is a matter of steady progress; I think it goes steady by jerks, as they sometimes say. I think until there is a more marked increase than was shown to be in progress at the date of this appraisal, that there is very little probability of additional value being paid for large tracts. And I say that with due knowledge of the recent sale to Mr. Nelson, too.

Surely, there is much more justification for Mr. Paschel's figures, which are corroborated by Mr. Martin, than for Mr. McDuffie's figures of \$5,500 an acre for approximately the same tract which has nothing to support it except a lot of verbal offers which were refused admission in evidence for the most part; and the small Balboa Terrace Tract sale, containing only 16 acres, in August, 1912.

Mr. Martin testifies (4030) that not much influence is to be attached to the sale of this Balboa Terrace property because of the strategic position which it has held in relation to the rest of the Sutro tract. The owners of that tract had to buy it in order to prevent any undesirable subdivision being made of it.

Moreover, it certainly seems fair, in dealing with the Merced Ranch as a whole, to make comparisons with the sales of fairly large tracts which might be said to bear a wholesale price, and not to compare it with small subdivisions.

Mr. Martin, your Honor will recall, makes a deduction of 20 per cent. for this wholesale feature in his valuation of the tract. This valuation is to be made as of the day, December 31, 1913, and there certainly is no showing of any realty transactions subsequent to the subdivision and sale of the Residential Development tract which justifies any higher price than was paid for those lands, all of which are nearer to the center of the city than the Merced tract, and most of which possessed superior scenic features.

As I have said, none of the defendants' witnesses attach any importance to the reported offers which have passed from one operator to another in the district west of the Twin Peaks during this period; and, as was subsequently developed, most of these offers are not entitled to any weight as evidence even as they were not made in proper form, and would not have been binding upon the offeror if they had been accepted.

I shall not take up in detail a discussion of the rest of the Merced valuation. The statements that I have made with respect to the portion of the ranch which lies along Sloat Boulevard apply with even more force to the portions that lie in the southern part of the tract and across the San Mateo County line.

In every case Mr. Paschel's valuations are checked by the prices paid on recorded sales; and the figures of Messrs. McDuffie and Baldwin can only be justified under the most highly speculative assumptions. The most ingenious of these, I think, is the assumption that they could value the tract without considering the presence of the lakes—possibly with their backs turned to them; and then turn around and look at the lakes and say that the tract would be worth 10 per cent. more if the lakes went with it. Mr. Baldwin does not even attempt to justify this except as a matter of opinion. Mr. McDuffie ventures some ingenious suggestions as to an aquatic park which should be forever held sacred to the superior class of people who would settle in his restricted districts. His suggestion appeals to one's aristocratic tendencies, if one has any; but I fear his proposition would be a sad failure in democratic San Francisco.

The city witnesses had treated the lakes in the only manner in which they can be intelligently treated from a real estate point of view. They have assumed that they were a part of the rancho—that they added scenic value to the land; and that all of that value was reflected into the valuations which they gave. From a real estate point of view the lakes could have no other value. Purchasers of lots along the shore of the lakes would naturally insist that their lot lands run to the water's edge.

Another feature of the valuation to which the complainant's witnesses appear to have given insufficient attention is the limitations which may be placed upon the retail prices.

Mr. McDuffie testifies that he is selling 50-foot lots in St. Francis Wood, which cost him \$3,000 an acre, or an average of \$3,250 apiece, without making any exorbitant profit. If he practically doubles his price when he crosses Sloat Boulevard, he will be under the necessity of selling his lots for about \$6,000 apiece, or an average of \$120 per front foot. Anyone familiar with the prices paid for real estate in San Francisco can appreciate that it will be many, many years before a subdivision situated five miles from the center of town can bear any such fancy price as that.

I also call your Honor's attention to the fact that Mr. Paschel's valuation of the portion of the Merced lands which are conceded by the city to be used and useful has not been contradicted anywhere in the record, and stands as the only testimony as to the value of those lands.

THE MASTER—Which lands are those?

MR. SEARLS—The lands which we concede to be used and useful.

THE MASTER—That corresponded roughly with one of the subdivisions?

MR. SEARLS—With portions of the various subdivisions, yes.

THE MASTER—In other words, there was a neck there between the two lakes that corresponded with some of the plaintiff's subdivisions, as I recall them.

MR. GREENE—They check almost exactly, your Honor, I think, so far as Mr. McDuffie's and Mr. Baldwin's subdivisions by numbers are concerned; I think you can place them right on top of Mr. Paschal's valuation of the 811 acres and they would almost come out even.

MR. SEARLS—As to that little tongue of land, there was very little difference between the witnesses, I think. It was when you get close to the Sloat Boulevard that the great difference arises.

His valuation has been made along scientific lines, based on the accepted methods of valuing fractional lots; and I think your Honor will observe, from a reading of his testimony, makes ample allowance for whatever severance damage may exist; and in this valuation, too, he has reflected into his marginal values the scenic value of the lake.

c. Utility of Lake Merced Properties.

I come now to a discussion of the utility of the Lake Merced lands. As I stated at the beginning of this branch of the discussion, it is difficult to discuss the valuation of Lake Merced lands without considering concurrently the question of the utility. The principal evidence afforded by Complainant's witnesses is the testimony of Mr. Hazen found on pages 8339 to 8353 in the record; by Mr. Metcalf (pages 10346 to 10358, 10599 to 10605, and 10992 to 10994) and by Mr. Eastman (pages 10960 to 10965 and 10967 to 10978). The burden of the testimony of these witnesses was that unless the company should own all the Merced lands that it now does own, except the Pacific Slope lands, there might be contamination of the lake waters. Outside of this general statement, however, none of these witnesses seem able to assign any satisfactory reason why there should be any contamination of the waters if the portion of the lands included in the city's condemnation suit and delineated in Mr. O'Shaughnessy's Exhibit 206, as well as Mr. Paschal's Exhibit 93, were reserved for watershed purposes and protected by simple and inexpensive expedients, and the rest of the lands sold off and subdivided, subject to restrictions that cast iron sewers should be used in certain areas.

d. Hazen on Merced Lands.

Mr. Hazen testifies (pages 8345 to 8353) that his reason for the inclusion of all the lands is to protect the supply; that the vegetable gardens that are now there have a slight tendency towards polluting the supply, but that tendency was less than would be the case if residences were built on it; that typhoid bacilli will not

come through the sandy soil, and that the soil itself acts as a filter; that hyperchlorite would kill all pathogenic bacteria, but that it would react so as to affect the taste of the water; that pollution would be caused entirely from human excretion and not from garbage; and that it is possible there would be no chance of pollution if the Merced Rancho were filled with dwellings and had an adequate cast iron pipe sewer system. It should be borne in mind that the company maintains an extensive drainage system which has been valued in the inventory and which conveys all the surface drainage from the Ocean View and Colma gulches, as well as any surface drainage from the southwestern watershed of the lake, past the lake, and into the Pacific Ocean through the Merced Tunnel. He nowhere states unqualifiedly that pollution would take place.

e. Metcalf on Merced Lands.

Mr. Metcalf testifies (page 10346) that he excluded the parcel at the outlet of the lake, but included the water rights. I suppose his reason for doing this was that although ownership of the lands around the lake would insure protection of the water rights, that the value of the water rights as compared with the excluded parcel was much larger, and that as witness for the complainant he should assume the highest alternative. Then he goes on to suggest that he would be afraid to exclude the portion of the Merced lands not included by the city, because of the danger of pollution. He describes the manner in which bacteria get into the water, and suggests that manure on the ranch and all that cultivation of vegetable gardens, would tend to increase the organic content. In fact, the only showing made by any witness as to the reason for alleged increase in organic content during the last few years was due to the use of manure fertilizer by lessees of the company for growing vegetables on part of the watershed adjoining Lake Merced, some of which cultivated area lies within the part the city concedes should be reserved.

I would like to read some excerpts from the testimony on this point, because Mr. Metcalf later retracts his statement as to the condition of the water during the years in controversy.

Tuesday, August 29, 1916.

THE MASTER—Before you resume your argument, Mr. Searls, I think this should be as good a place as any other to ask some questions: did I understand you to say yesterday, Mr. Searls, that it might be possible in your view that the value of property devoted to a public use might be less than its value in exchange?

MR. SEARLS—By value to a public use I meant the special value for that use.

THE MASTER—I don't like that term very much; suppose we take a case of a piece of property that is being used in the public service for water purposes or any other purpose, how would it be possible for a piece of property devoted to public use, which was property that by that fact could be acquired originally by the use of eminent domain, be worth less than it would be for other uses?

MR. SEARLS—I don't think its market value could be less. I did not intend to convey that meaning by my argument. The thought I had in mind was that counsel had been constantly emphasizing the fact here that all of this property had a real estate value and in addition to that a water supply availability value which would be pyramided on top of the real estate value so to speak; that is because the property had a use as real estate and, as he expressed it, an additional use as a water supply, that then because it had that much real estate value and in addition to that had availability for water supply purposes, necessarily its market value—or very probably its market value—would be greater on account of the additional utility. What I thought to suggest was that the utility for water supply purposes was not additional, it was alternate, and they could not use the land as real estate and at the same time use it for water supply purposes.

THE MASTER—I think that, of course, is entirely proper. It is in its nature an alternative use. It could not be used both for a residence and a reservoir. I was just simply stating the point that if property was property that could be acquired

by eminent domain it would seem to follow theoretically that its value was either greater or equal to its value for other uses; it could not very well be less, otherwise you would have the parties paying a certain value in condemnation and then having the property carried into a rating base at less. That does not seem to be logical, does it?

MR. SEARLS—No.

THE MASTER—There might be this exception there: suppose that land on the principal business street of this city has been used for a water-tank, it would be a plain case of abnormal plant and would not be rated at its value for a business purpose; I suppose you agree to that, Mr. Greene, do you not?

MR. GREENE—I should think so, yes.

MR. SEARLS—I think all the witnesses have appreciated that with respect to the Merced Lakes.

THE MASTER—Yes, I will come to that point. I think, however, the suggestion you made a while back—and I am throwing this out as a suggestion to both sides—with respect to the pyramiding of values as you call it, that is, putting upon the market value an additional value for water purposes is answered by the case of *New York vs. Sage*—

MR. SEARLS—I was going to refer to that in my discussion of reservoirs.

THE MASTER—As I take it the court there held that in the case of eminent domain the availability of land for reservoir uses was to be considered so far as it would carry value to any body of the general public; that is, if I held a piece of land which I could not use for a reservoir and it was worth in the sense of income, or for residence purposes, or what not, a certain sum, I might hold it and you might buy it at an additional figure by reason of its availability presently apparent. The New York case presents just that question.

MR. SEARLS—Your Honor will recall, however, that the court in that case did state that the hypothetical possibility that the entire reservoir site might be acquired by one owner other than a utility or a municipal corporation vested with power

of eminent domain was so remote that they did not consider it should have any particular effect on the value of the particular parcel and that the value in eminent domain should not be considered in valuing an individual parcel.

THE MASTER—I am not quite sure that you interpret it right and I have not the decision before me. What I had in mind as to the interpretation of that decision was that that possibility of union in one body necessarily figures for its utilization as a reservoir was something to be estimated according to the fact; if the fact was that it was to be realized then naturally anybody would take that into account; but the court says that cannot be divided up with the prior owner of the property in eminent domain proceedings on the theory that it was worth more to the purchaser—to the water company. If there is a sufficient worth in the hands of the buyer in that eminent domain for any reason it is a question of its worth to the seller; it is what the seller loses and not what the buyer gains. You remember that they emphasized that. As they say, if it appears that the situation is such that this little parcel can be used as part of the reservoir with others and it is about to take place, then to whatever extent that possibility is affecting the market generally the present owner is entitled to that, but he cannot get a share beyond that in the value that the land might have to the condemning party. It raises an interesting question right there as to whether when you rate you are going to recognize a difference between the two. I do not think so myself, but I may be wrong in that—I mean I do not think so if we are to follow the Sage case.

I want to ask a question now that came up in my mind during Mr. Greene's opening. I think, Mr. Greene, you stated generally your belief that the value for one purpose was value for all purposes, did you not?

MR. GREENE—I did, your Honor, yes.

THE MASTER—In other words, it is value and nothing different and special in the case of a rate proceeding. Now, suppose we accept that and say that market value for all

available uses and purposes is the value in condemnation, and the value in voluntary exchange and the value in rate-fixing purposes—suppose we include all the Lake Merced lands, what are you going to do then, Mr. Greene? Here you have a body of land which you contend is worth \$6,000,000 or \$7,000,000, and Mr. Hazen rates it, we will say, at \$4,000,000—I don't remember his exact figures—and he makes that reduction practically on the principle of abnormality of the plant. That is an easy solution as regards the question of rating, but how about your initial proposition that value for exchange and rate value is the same; would you make the exception that that principle does not apply in the case where there is any element of abnormality present?

MR. GREENE—My own notion about that, your Honor, is this—and I think I ought to preface my answer with another statement. Mr. Hazen and Mr. Metcalf testified to what they called a rating base. Now, when you come right down to the fundamentals, their testimony amounts to nothing more than this, that the amount which they placed on the property represents their notion as to the fair value of the property for rate purposes, and is based primarily, as I understand it, on their experience in operating properties, and in selling them and in constructing them. Now, as I understand the law, it is that we are entitled to a return upon the fair value of the property that is devoted to the public service. The property in this case, according to our contention, includes the Merced lands, and if those lands are devoted to the public service, they ought to be included in the rating base. That means that taking the property as a whole, if it includes the Merced lands, that the value ought to reflect the worth of the Merced lands. The only influence that I could see that would reduce that amount as a rating base would be the fact that the return based on that value would be an excessive burden on the rate payers here, in line with the suggestion in the Consolidated Gas case. Of course, if there is a clear case of abnormal plant, that might be another way of reaching the same result;

but I certainly don't think there is any showing here that it is like the tank on Market Street to which your Honor referred.

THE MASTER—If you had the instance that Judge Savage spoke of, of the 500 horsepower engine put in where a 100 horsepower engine was all that was required, that was the case of an abnormal plant. That might be abnormal for an indefinite period in the future. If that particular plant was sold, they would not get the 500 horsepower price for it, even in condemnation, and they could not expect to rate on it on that. If you have a case, however, where the 500 horsepower engine was necessary, you have not a case of abnormal plant, and although it might make an abnormal burden on the consumer, that is, a heavy burden on the consumer, the consumer has to pay for the cost, and if necessary he has to pay on the 500 horsepower engine, even though it looks high as compared with other places. My view has always been that you cannot push that principle of worth to the consumer too far, he has to pay for the service, if it is necessary it has to be paid, though it seems high. I am not sure, therefore, that I would consider the term "rating base" as meaning anything more than the normal value of the plant. If the plant was worth X million dollars, I would not be inclined to lop off \$2,000,000 from it. If you put in the Merced lands, then, as Mr. Hazen did, at less than their market value on your contention, and I accept that conclusion, then you are placed in the position, if the value is the same for both purposes, of having to sell those lands at less than their value if the city should acquire the plant next year; and if it should happen that the present use of them was only for a period of a few years, you would be in a situation that would not be pleasant. Here is land, we will say, that on your assumption is worth \$6,000,000 or \$7,000,000, that you are going to realize on in the next few years, and you are putting it in the rating base now at less than that. There seems to be a hiatus in your logic there. Either it is worth the full price, or it is not.

MR. GREENE—It is just that hiatus which was the subject

of numerous discussions between Mr. Hazen and ourselves. I think your Honor saw enough of Mr. Hazen while he was out here to know that when he got a definite idea into his head as to what was the fair thing to do, it was perfectly useless to try and argue it with him. He thought the value he put on Merced was worked out on as careful lines as he could work it out, and for these proceedings—as he put it—he thought that \$5,000,000 was the proper amount to allow for Merced. He said, “I don’t care about the law, as to what you are entitled to, if you want me to testify to the rating base that is my notion.” I thought that from a man of his experience and standing it would be interesting, at any rate, to get his notion whether it was founded on legal principles, or not. I think your Honor’s criticism is perfectly just, and you may recall that when we were discussing the value of the properties I refused to tie to Mr. Hazen’s valuation of the plant.

THE MASTER—I remember he said it caused him a good deal of worry. Here is another thing that occurs to me—and I think this discussion is partly practical and partly theoretical, perhaps this particular question is entirely theoretical. Suppose following our usual methods we exclude certain property—lands, for example—as not in use, and not entitled to be estimated in fixing the return, are those lands subject to condemnation by some other water company?

MR. GREENE—I suppose we would have a right to litigate that question over again as to whether they were actually used and useful as between parties other than the city and ourselves. I think the determination here would not be conclusive, although it might be embarrassing.

THE MASTER—That point seems to hit at our whole idea of excluding lands that are not immediately in use. I do not want to discourage you, Mr. Searls, I am not going to include the Locks Creek land or the Pescadero lands here, but the thing worries me a little bit in trying to get the theory clear.

While Mr. Searls is on the point of discussing the usefulness of the outside lands of the Merced Rancho, their inclusion is,

I understand, based entirely on their value as a protective area. It is a matter about which I have had a good deal of doubt throughout the proceedings, as to whether they are a protective area, or not. Of course, I can well consider the desirability of taking every possible precaution to get safe water. On the other hand, we have their character as being sandy, and important evidence of the fact that during all this period of contamination by manure the organic content of the water has not increased. You will remember that Mr. Metcalf at first said it had, and therefore it rendered the water less desirable, but later found out by tests that it had not. The question is whether if extensive manuring would not do that, habitation would do it; what I am wondering is whether Mr. Hazen, in expressing his judgment that it was absolutely necessary to have the lands as a protective area was of Mr. Metcalf's first opinion, or whether his judgment may not have been modified by the facts, that is to say, that the organic content of the water had not increased. Mr. Metcalf was still of the same opinion, despite that fact. It is a question in my mind yet whether his judgment is not influenced simply by abundant caution, or whether he may not be mistaken. I want you to consider that when you come to reply. You may now proceed, Mr. Searls.

MR. GREENE—There is one question I want to ask you, Mr. Searls, in view of his Honor's question, and it occurred to me in a rereading of the transcript: In accordance with Mr. Grunsky's value of the Peninsula reservoir properties, I do not quite understand your use of the word "pyramiding"; I was wondering if you would explain that so I could get it a little clearer.

MR. SEARLS—Do you want me to do it now, or do you want to wait until I come to the discussion of reservoir lands?

MR. GREENE—If you are going to discuss it specifically, that will be all right, and I will wait. I didn't understand you when you talked about it yesterday.

THE MASTER—Mr. Greene, is your recollection of the testi-

mony clear as to what ratio Grunsky finally found between the watershed lands and the reservoir lands?

MR. GREENE—For an average of all three?

THE MASTER—Take Crystal Springs, for example.

MR. GREENE—The ratio of present value or of original cost?

THE MASTER—Not original cost, present value. Did he have anything to say on that? He reached a figure of \$1450, or \$1250, didn't he?

MR. SEARLS—I think it was \$1400.

MR. McCUTCHEN—He reached a figure of \$1400.

MR. GREENE—He compared that with Mr. Baldwin's and Mr. Hoag's valuation of the average of the watershed land, and, as I recall it, found a ratio of about 10 to 1.

MR. McCUTCHEN—As I remember it, he said that that would indicate that the market value of the reservoir lands was about \$1750.

MR. GREENE—Yes, that is correct; I had forgotten that,

THE MASTER—So if you actually did establish a ratio by computation it would be less than ten to one?

MR. GREENE—I do not so understand it.

MR. SEARLS—He took that for the entire Peninsula, your Honor. In order to be fair to him, he determined a ratio greater than that for Crystal Springs and less than that for San Andreas; slightly in excess of 10 to 1—is the language he used in his final computation, \$406 and \$38; as to San Andreas it only came out about 4 to 1 in the final computation.

THE MASTER—All I had in mind was the statement of the principle—and I think it was brought out by something you had to say yesterday—that if any such method would be proper it would not follow that an established ratio would at all times prevail. That, of course, must go without saying.

MR. GREENE—That must be conceded, of course.

MR. SEARLS—Oh, yes. I didn't understand him to make a general statement as between reservoir and watershed lands, but

I understood him to make that statement so far as the peninsula lands are concerned.

THE MASTER—I remember that Mr. Olney brought out the facts in the matter. You may proceed now, Mr. Searls.

e. Metcalf on Merced Lands (Cont.).

MR. SEARLS—I was discussing at the close of the argument yesterday the opinions of Mr. Metcalf and Mr. Hazen as to the utility of the Merced lands, and I wanted to quote briefly from Mr. Metcalf's testimony showing the effect of the change in his findings as to the organic content of the water supply. He says, on Page 10,353, as part of a long answer:

"A. The effect of encroachment of population has already been felt, and it will be felt more certainly as time goes on."

And on 10354:

"MR. SEARLS—Q. My question went to the actual condition during the years 1907 to 1915. You stated that the growth of population had some effect upon the water there. I was wondering what that was?

"A. I mean in this way, that the increase in the density of population, more particularly up in the direction of Daly City, and on the slopes adjacent to the Merced Lakes, has in my judgment increased the organic content of the water; anything which you do to bring population upon the watershed increases the hazard of surface population, of defecation and of such material reaching the lake."

The foregoing is the only statement that I have been able to find, from either Mr. Hazen or Mr. Metcalf, that the encroachment of population on the Merced watershed had anything to do with pollution of water during the years in controversy. Both of these gentlemen said a great deal about what might happen in the future, but with respect to the past they expressed, with the exception I just noted, only vague alarms. But the interesting thing about this one concrete statement of Mr. Metcalf is that he contradicted it later.

At page 11063 he says:

"A. * * * I have also to call your attention to a misstatement I believe of fact concerning the condition of the water in the Merced Lakes during this rating period. I am sorry that the record of this analysis has not yet been copied but I will have it here this afternoon and will make my statement at that time so that the record shall be clear. In brief, it seems to me a fact that my statement that the later analyses show a higher organic content in the water of the lake does not seem to be borne out by the analyses which have been made of that water. How I got the idea I do not know. I certainly thought it was the case, and I should still expect it to be the case, but apparently Dr. Blue's anticipation of what would happen was better justified than my own view as to what I should expect to happen."

Now, it seems to me, your Honor, that this bit of evidence is very significant as showing that the apprehensions of Messrs. Metcalf and Hazen, assuming as I do that they were honestly expressed, and were not intended merely to furnish a basis for the inclusion of the Merced lands, were not borne out by the actual records. If any increase in population would have affected the Merced supply during the years in controversy it would certainly be a relatively heavy increase in population in the districts adjoining Daly City, the surface drainage from which goes directly into the Ocean View and Colma gulches, and is intercepted by the drainage culverts. As your Honor recalls from observation, there are no deep gullies on the east shore of the lakes after you leave the district west of Ingleside which is protected by this drainage system. With reasonable restrictions as to sewers, and the erection of an ordinary fence to keep trespassers away from the immediate shore of the lake, I cannot find in this record any evidence which would justify a reasonable man in believing that there would have been the slightest danger of polluting that water during the years in controversy had the city's exclusions in fact taken place.

f. Eastman on Merced Lands.

Mr. Eastman testifies that the Company has permitted the cultivation of the areas shown on his Exhibit 217 under advice of Dr. Rupert Blue and others that this cultivation would not result in injury to water, all tenants being required to have catchment basins for their sewers. He states also that in leasing it has always been important to keep all leases on the south side of the drainage canal, as any drainage from the area occupied by the gardens has to drain to this catchment basin. The water is pumped directly from the south lake, and he understands is transferred (page 10961, 10962), from the north lake which is connected with the south lake by a pipe with a gate.

Of course, it is apparent that if there had been danger of pollution from the Daly City sources which drained directly under the gulches, it might very well be that the water would infiltrate clear underneath the drainage culverts, but the sandy character of the soil and the natural filter which it seems to constitute in itself would appear to absolutely prevent that, as a matter of fact.

g. Protective Plans for Future Only.

Apparently not satisfied with the testimony of these witnesses, counsel then endeavored to establish the fact that the protective schemes proposed by the city were for the future use as a reserve supply—and I am sure that all the witnesses concur in the view that Lake Merced should be abandoned as a regular source of San Francisco water supply at the earliest moment and relegated to the position of an earthquake reserve. Of course, counsel admits that until the Hetch Hetchy supply is completed by the city, Merced will have to be used as a regular source, and that the expedients advised by the City Engineer were designed to apply for that use as well as future use, and, what is more important, the fact that these expedients were designed to prevent future pollution.

There is nothing in the evidence in this case which tends to substantiate the theory that the structures referred to for

future protection would have been necessary for protection of the supply during the years in controversy, owing to the sparseness of the population west of Twin Peaks. If, as Mr. Paschal testified, less than 100 dwellings had been erected in the residential development tracts, and a correspondingly small number in Parkside and in Ingleside Terraces, there is little reason to apprehend that a population would have been settled upon the Merced lands of density sufficient to threaten the security of the supply even if no protective works had been erected other than those included in the inventory. All that would have been necessary, so far as this record shows, would have been to prevent the infiltration of organic matter from sewage, which could have been accomplished by requiring cast-iron sewer construction and the construction of storm sewers to take care of the surface flow which would, of necessity, accompany any residential subdivision. At the most, these lands, outside of condemnation area, had no greater value for protective purposes than the cost of a fence around the area. Mr. O'Shaughnessy testifies at page 10,727, that the value of the entire protective works which he proposed would not be possibly a quarter of a million dollars.

These works included a boulevard and suitable gutters, and curbs. A fence would obviously cost much less and would furnish all the protection needed during the years in controversy if the existing drainage system be also taken into account.

The expense of such a fence might be said to represent the entire protective value of all these millions of dollars worth of outside lands. The suggestion made by counsel that the company would not have been able to sell the lands in question by reason of their having been dedicated to a public use is equally without foundation. In the first place, they were putting them to agricultural use themselves in a manner which Mr. O'Shaughnessy, as City Engineer, testifies is wholly inconsistent with the maintenance of the purity of the supply (10505).

THE MASTER—If I followed Mr. O'Shaughnessy's suggestion that the agricultural use was polluting the supply I do not

think I would have any hesitation in including them in the rating base because if agricultural use does pollute the supply I should be inclined not to take the chances of habitation. The curious thing is that if Mr. O'Shaughnessy is wrong, as these tables seem to warrant, I would be somewhat inclined to take the city's view.

MR. SEARLS—Mr. O'Shaughnessy's testimony was that it would be easier to protect against pollution from residential use than it would against the agricultural use which the company made of it and I shall show your Honor shortly the real effect of Mr. O'Shaughnessy's testimony was from the point of view of the company. He felt that the company was committing a faux pas in coming here and claiming that these lands were held sacred for the protection of this water supply and at the same time putting them to this outside use; in other words, they wanted to use them for agricultural purposes and at the same time charge the rate-payers with a return.

MR. GREENE—Both returns being reckoned as a part of the income upon which rates were to be established, Mr. Searls.

MR. SEARLS—Oh, yes.

MR. GREENE—In other words it was minimizing operating expenses, wasn't it? Is there any question about that, Mr. Searls?

MR. SEARLS—No.

In the second place there is no law of the State of California which would prevent them from selling these lands outright if they were not necessary for protective purposes as we claim. And, if that is what is worrying counsel, I suggest that the kindest thing that your Honor could do to relieve his mental uncertainty would be to make a finding of fact that these lands outside of the condemnation area are not either used or useful in supplying the city with water.

THE MASTER—Did you look up the law on that question? You will remember there was some question as to how to get lands that were in public use out of public use?

MR. SEARLS—We do not concede that these ever were in public use.

THE MASTER—Well, to clear the title. Can the court's finding here clear the title to such lands?

MR. SEARLS—I think any abstract company would be willing to pass the title after your Honor has made a finding in the case where the issue was directly involved.

The complainants will be at liberty then to dispose of these lands at the prices Mr. McDuffie has put upon them, and thus furnish an interesting test as to the credibility of his testimony.

h. O'Shaughnessy on Merced Lands.

For the city Mr. O'Shaughnessy has testified without reservation (10,503) that the 811 acres indicated on his Exhibit 206 provide an ample margin for the water supply and sanitary protection of same, when taken in connection with the existing drainage structures; and shows that the area is not out of proportion to the percentage which is retained by the city of New York on the Croton Aqueduct system.

On cross-examination, counsel attempted to make a great deal of a report for rate-fixing purposes which the city engineer filed with the board of supervisors in 1913 but, as is shown this report was a routine matter in the first place, and in its very phraseology, was based wholly upon Judge Farrington's decision. Judge Farrington ruled that the Merced lands should be included in the valuation of 1903 for one reason, I suppose, that no intelligent basis of separation had been suggested in the record in that case. That being the only judicial ruling on the matter at the time the city engineer felt constrained to follow it. This view was corroborated by the fact that, in making his report of the lands for a condemnation suit a few months later, he excluded the Merced lands in question although it was, of course, apparent to him that Lake Merced must serve as one of the main sources of supply, and not merely a reserve until the completion of the Hetch Hetchy construction.

i. Utility a Question of Fact, Not Estoppel.

I see nothing in the way of estoppel, or anything deserving of special equitable consideration in the failure of the city to specifically exclude these lands in official reports and applications made prior to 1913. In the first place, the city authorities doubtless felt bound by Judge Farrington's ruling in the preliminary injunction for the 1908 case, and the final injunction for the 1903 case. In the second place, so far as this court is concerned, the facts as to whether the Merced lands were or were not in use during those years does not rest upon estoppel—it is a question of fact.

The rate-payers are the parties directly in interest in this case in this city. The years in which the ordinances were passed are gone, and it only remains to determine the disposition of the impounded funds. The city is therefore appearing in this case merely as an agent for these thousands of rate-payers, so far as any direct or equitable interest in the subject matter of the litigation is concerned. The Merced lands are either useful or they are not useful. There is a clear-cut issue on that question before your Honor upon which I feel that your Honor should and must find, as a question of fact—not as one of estoppel.

Counsel has quoted, on page 56 of his argument, from the abstract of the testimony. And I think a different impression is conveyed by its language than the record shows. Quoting from Mr. O'Shaughnesy's testimony, which reads as follows:

(Referring to rate-fixing reports in 1913)

"A. * * * I think that Mr. Ransom and I had at least half a dozen conferences on the report, and so far as information was available, I felt before I signed the report that I had all the information necessary to warrant my signing it."

The record (10684) reads as follows:

"Q. Now, bearing in mind that a period of two and a half months elapsed between the time when you were called upon to make that report and the time when it was made,

is it not your best impression that you and Mr. Ransom had a great number of talks on the subject?

"A. I think I have stated that we had at least half a dozen conferences on it.

"Q. At any rate, you felt before you signed the report, that you had all of the information necessary to sign it, did you not, to warrant you in signing it?

"A. So far as information was available."

It seems to me that the testimony in the record conveys a very different inference that information was not available, whereas the abstract makes it as purely a parenthetical remark of small significance.

Again, counsel says, page 75 of his argument:

"* * * It is quite clear that, during that period and up until the farming operations were commenced upon the property, O'Shaughnessy considered all of the Merced perproperties as in use."

I submit that there is nothing in O'Shaughnessy's testimony which warrants any such conclusion by counsel. The question of manuring the land was brought out in Mr. O'Shaughnessy's testimony on direct examination solely in comparison with the danger of contamination from residential use, and he then and there expresses the opinion that the danger of pollution from the manure which had been spread upon the property adjoining the shore of the lake, in the last few years was far more detrimental than would restricted residential districts be. I fail to see how that can be construed as an admission that the property was useful for water-supply purposes up to the time that the manure was put on it.

On page 76 of the argument, counsel again quotes a garbled excerpt from the record, as follows:

"Q. It was your understanding that up to the time these properties were used to some extent for agricultural purposes, they had, during their ownership by the company, been used exclusively for the purpose of protecting that water supply?

"A. I should say that was the case.

"Q. And nothing, so far as you know, had occurred to affect or change that exclusive use, except the use of the property for agricultural purposes to the extent to which it was used for agricultural purposes?

"A. That is the only exterior influence I observed."

If your Honor will examine the record, you will find that counsel had been leading the witness along as to the manner in which these lands had been reserved by the company from any use up the time that they commenced to fertilize them, and the witness's answers to these questions, if construed with the context, mean nothing more or less than that the company had held them for that purpose—not that the witness considered them used exclusively for water-supply purposes. This is corroborated by his redirect examination, which counsel omitted to read on his argument.

The testimony to which I refer reads as follows (10774):

"MR. SEARLS—When you stated in response to a question by Mr. McCutchen that it was your understanding that prior to 1913 the Lake Merced lands had always been used by the company for the protection of the water supply do you mean that the company reserved the land for that purpose or that it was necessary for the protection of the water supply?

"A. I mean the company reserved the land for the purpose.

"Q. In making that statement, do you not pass on the question of necessity?

"A. No."

The net result of this is that the witness was looking at the situation from the point of view of the company's attitude up to the time that farming operations were started; and there is no contradiction of his previous statement that the lands were not, as a matter of fact, necessary for this purpose. I am totally unable to follow counsel's line of reasoning on page 80 of his argument where he says that because only three acres within the 811 reserved for protective purposes were cultivated, that on Mr. O'Shaughnessy's theory the pollution was necessarily traceable to the use of lands outside of the 811 acres and that, inasmuch as counsel says the witness places the use of that property for

residential purposes on the same plane as that for farming, therefore they would have been polluted if used for residential purposes. Counsel's premises are altogether wrong. Mr. O'Shaughnessy does not place use for residential purposes on the same basis as the use for farming. Nor does he assume the use for residential purposes would, during the years in litigation, have caused pollution of the waters of the lake if confined to the area outside of the 811 acres. Nor can I follow counsel's line of reasoning on the following page of his argument, (p. 81) where he says O'Shaughnessy had testified that he excluded all of the Merced ranch outside of the 800 acres, irrespective of the use to which it was being put during the years in controversy, that, therefore, that use has no bearing upon the question at all. The only reason for which Mr. O'Shaughnessy brought in this question of pollution from manure, was, as it appears very clearly from his testimony here, that the company itself was here claiming to hold this land sacred to water-supplying purposes, and was putting the land to a use which the witness believed to be absolutely inconsistent with those purposes, and that they were thus defeating their own ends. The company's witnesses have suggested all along here that this land would have been used for residential habitation, and that use would have been detrimental to the water supply. Mr. O'Shaughnessy's testimony is to the effect that residential habitation would have been far less detrimental than the use to which the company put the land itself. On page 75 of his argument counsel states that it is his conclusion that up to the time farming operations were commenced on the property O'Shaughnessy considered all of the Merced properties, in use, that it was the use of the lands for agricultural purposes that caused the change of front. Counsel's conclusion is obviously in error. If your Honor will read the witness' testimony carefully Mr. O'Shaughnessy's conclusion was simply this: Up to the time farming operations were commenced on the property, Mr. O'Shaughnessy thought the company had considered all of the Merced properties as in use, that it was the use of the lands for agricultural purposes that caused him to change his opinion

of their attitude. Counsel's conclusion is obviously an error, in the light of the reasoning which I have just stated.

j. Company's Attitude Justifies Exclusion.

After they commenced to fertilize the land adjacent to the lake with manure Mr. O'Shaughnessy came to the conclusion that the company itself had abandoned the idea that this land was useful for water-supply purposes, and was developing its agricultural resources. All of this testimony which was brought out on cross-examination has very little to do with the real issue in the case. Whether the company considered the property in use or out of use is not the real question at issue, although their attitude in developing its agricultural resources to the detriment of the water-supply may be evidence against their right to contend here that they had reserved the land exclusively for water-supply purposes. The real question is, Was the land actually used and useful and necessary for water-protecting purposes? That is the question to which Mr. O'Shaughnessy addressed himself in his direct examination, and the question which counsel, on cross-examination, befogged with questions as to what the witness thought the company's purpose was in holding this large acreage. The record is very clear that the witness does not and never did consider that it was necessary to hold this outside land for protective purposes, any statement made under the ruling of the Farrington decision to the contrary notwithstanding. The suggestion of counsel that the city engineer had insufficient regard for the preservation of the purity of the Merced water supply is answered on pages 10715, 10716 of the record, where are the details of the sanitary precautions he intended to take for the future protection of the supply when the watershed population should have developed to such an extent as to increase the possibilities of contamination. But these precautions had nothing to do with the situation during the years in controversy; and it is his opinion that there would have been no residential development during the years in controversy of such a type as to endanger the purity of the supply, due to the sparseness of the population in that section of the city.

There is an interesting commentary on the attitude of the company prior to the commencement of this case contained in the testimony of the witness, page 10,715, from which Mr. Greene, in his argument, (p. 74), quoted only one sentence.

"Q. Did you not prepare a map indicating an area containing approximately a thousand acres, and was not that map prepared after a good deal of care and after great consideration?

"A. I recall I made one preliminary map outlining substantially the quantity of land I desired, and I held various conferences with engineers and employes of the company, and they had very diverse views as to the area of land we needed. In fact, they wanted to crimp the area down very much smaller and leave us 500 acres, including the lake, for use. It was only after months of treaties and negotiations and discussions of various features that the final boundaries were agreed on."

Does that testimony read like the testimony of a man who was careless with the protection of the city water supply, and does the attitude of the company's engineers, which he describes therein, bear out their great anxiety that all this land should be included as necessary to protect the water supply?

MR. GREENE—You, of course, appreciate, Mr. Searls, that that was in view of the announced intention of the city to bring in the mountain source of supply, don't you?

MR. SEARLS—I will come to that in a moment. Counsel attempts to get around this by insisting that they were thinking about future use in connection with the Sierra supply. His argument answers itself. The company's engineers knew, and counsel knows, and it was apparent to everybody, that it would be seven or eight years before any Sierra water could be brought in to relieve the situation in San Francisco, and that it would be many years before Merced could be relieved of its obligations as a regular source of supply.

MR. McCUTCHEN—Mr. Searls, wasn't that simply a matter of money at that time, and was not the city and the company—the city particularly—looking to the future—and is it not a fact

that it was desiring to get for as small a sum as possible the least portion of the Merced property with which it could get along?

MR. SEARLS—I suppose the city was trying to get the largest portion it could for the money, and the company was trying to let go of the smallest portion it could, as a matter of real estate bargaining. I was not present at the conference and I don't know anything about what happened there, other than this description of it.

MR. McCUTCHEN—Well, taking his description of the situation, do you think they were looking to the present?

MR. SEARLS—I think the present must have had considerable influence there, in view of the fact that no mountain supply could be brought in for a good many years and Merced would have to be used for a good many years to come.

MR. McCUTCHEN—Wasn't Mr. O'Shaughnessy looking forward at that time to the almost immediate development of Calaveras?

MR. SEARLS—Even so, it would be some years before that could be brought in.

MR. McCUTCHEN—It was assumed then it could be brought in inside of three years, and it was the bringing in of that source that was to relieve the immediate necessities of the city.

MR. SEARLS—However that may be, it would have taken some time, even if it were three years.

k. No Specific Reasons for Complainant's Inclusion.

The evidence is in conflict only as to general terms. The plaintiff's testimony is full of considerations of their engineers, that they would feel safer if the company retained all the lands, and generally expressed conclusions of this sort. But when they are reduced to particulars, they have failed to show one single reason justifying the imposition upon the rate payers during these years of the burden of paying a return on over five millions of dollars worth of real estate which was serving no useful purposes. Undoubtedly, it was a splendid investment for the company. If any man can go out and purchase 2800 acres

of land under the guaranteed assurance that he would receive as much as 5 per cent. return on it as long as he held it, and that it would probably increase in value from 10 to 20 fold, I fancy he would jump at the chance. Such has been the company's policy. I do not wonder that they fight here when any cross-examination is leveled at it for it strikes at the heart of this whole controversy. If the Spring Valley Water Company had limited its investment to the purchase of properties that were necessary for its present and immediately future use we should not be here today. It was only because they have gone all outside of the bounds of reason in acquiring these vast holdings of land at Merced, at Pleasanton and elsewhere with the idea that they could collect rates yielding a return on their investment unjustly and then sell them off at greatly enhanced values when some other source of supply should turn up that has brought us to this situation.

Counsel suggests that the Board of Supervisors has not objected to it prior to this. I do not hold any brief here for the Board of Supervisors as a rate-making body, for their action is not here a subject for review. I have stated, at the opening of this argument, that I believe the only consideration which can be given by this court is to the facts which are before it as on an original investigation. Whether the board of supervisors elected to reduce the value of these properties rather than to limit their bounds is not a matter which concerns us in this case. If, as we might suspect, they found only that the water rates in San Francisco were twice as high as those in any other great city in the country, (as Mr. Hazen admits) and felt that the vast realty holdings of the company were of far less value for water-supply purposes than their claimed valuation indicated, and, accordingly, reduced the valuation of the whole rather than eliminating the parts, again, I say, that subject is not here for review by your Honor. We are here to test the sufficiency of their conclusions, not the means by which they reached them; and in testing that sufficiency we are entitled to try, *de novo*, every issue which can legitimately arise in connection therewith (8419).

There are a number of cases which pass upon the question of

the inclusion of properties which are not used or useful. I think I shall postpone a reading of those until after I discuss the Pleasanton situation, because it occurs to me that the principles involved in the Merced and Pleasanton exclusions are practically identical, while the principles that are involved in the exclusions of the Alameda watershed lands are somewhat different.

I shall conclude this discussion of Merced lands, though, by again calling your Honor's attention to the fact that the burden of proof was on the complainant to show that all these lands were, as a matter of fact, used and useful, and needed in supplying the city of San Francisco and its inhabitants with water and that they have failed to sustain this burden. The record shows nothing more than general statements by Mr. Metcalf and Mr. Hazen based on vague fears as to the possibilities of a more or less remote future, which were contradicted by the showing of the defendant's witnesses that, in the first place, these lands were not necessary during the years in litigation to protect the purity of the supply due to the character of the soil, the sparsity of the population that had settled west of Twin Peaks, and the sufficiency of the drainage works which were already installed and accounted for in the inventory. In the second place, that by farming out their lands with vegetables and spreading the surface with manure the complainants have for many years so used them as to constitute a distinct detriment to the water supply rather than a protection. While it is not denied that, if the population of that district should grow rapidly in the future, some steps should be taken toward the construction of relatively inexpensive structures to prevent surface pollution, and that reasonable restrictions should be adopted in the matter of sewer construction, and so forth—even these considerations do not apply to the years in litigation, and defendants' claims for exclusions should be allowed.

4. The Peninsula Lands.

The Peninsula lands, comprising the 22,000 acres real estate owned by the company, situated in San Mateo County, were appraised for the company, by Messrs. Baldwin & Hoag and for the city by Mr. Norwood Smith and, as to particular parcels, by the witnesses Tuchsén, Oliver and Faber. There is practically no dispute as to the utility of these Peninsula lands.

a. Utility.

Mr. Dillman, in making up his rating basis (10833) excludes certain parcels and in enumerating the parcels which he has there excluded I am informed that he made some errors in the parcel numbers although the figures for the exclusions are correct and check with the company's listings.

THE MASTER—Where did he exclude property?

MR. SEARLS—Some of the West Union land and land on San Mateo Creek. I shall give now the correct list of exclusions.

THE MASTER—There was no dispute between the parties on that, was there?

MR. SEARLS—No, your Honor, except as to Parcel 90. He excluded a small portion of the Howard Tract which the company did not concede. Mr. Dillman's exclusions were part of Parcels 28, 43, 101; all of Parcels 29, 33, 128, 138; Parcel 62, a portion of Parcel 90 and Parcel 91; the West Union lands, Parcels 194, 195, 205, 208 and 211.

This does not necessitate any change in Mr. Dillman's figures as the totals that he used were the totals of the values of the parcel numbers I have given; in some way an error crept into the copying of them in his exhibit. The only difference, as I have said, with the Spring Valley witnesses lies with the exclusion of Parcel 90.

There have also been deducted from the miscellaneous tracts for various reasons, parcels 214, 215, 216, 32, 139, 186 and 187, in which deduction the company concurs. And Parcels 35, 127 and 180, in which they do not concur, but which were deducted

because they had been separately estimated as rights of way by Mr. McDonald.

b. Valuation of Lands.

There is a wide difference in valuation of the lands which are admittedly in use between the plaintiff's and defendant's witnesses, even if the question of reservoir values be for the moment excluded.

THE MASTER—Did Mr. Smith value the full acreage down there?

MR. SEARLS—Yes, your Honor.

THE MASTER—That is, he valued the reservoir areas as well as the watershed areas?

MR. SEARLS—He reflected the value of the reservoir areas in the adjacent watershed.

THE MASTER—I remember he said that. Other than that reflection in the watershed he did not value the land under water?

MR. SEARLS—No.

THE MASTER—But Mr. Dillman did?

MR. SEARLS—Mr. Dillman did.

One of the principal reasons for this difference, as we shall contend, arises from the fact that Mr. Baldwin and Mr. Hoag have both placed values on the peninsula properties, as we claim, based on retail selling prices, whereas Mr. Smith has valued the property as a whole and at wholesale prices. Judge Farrington, in his decision in the 1903 case, unqualifiedly condemns the attempt to place retail prices on the Lake Merced tract. He says:

“Mr. Baldwin bases his valuation on the assumption that the tract can be divided into lots and sold for residential purposes. In support of this he cited the Parkside property, then being sold in subdivisions of 25 by 100 feet at from \$800 to \$1200 each. The witness was confident that the whole property could thus be disposed of in San Francisco and elsewhere within a reasonable time. . . . It is insisted by complainant that he only obtained evidence as to the value of the property sold by Mr. Baldwin. To this I can hardly yield my assent, and, as to Mr. Baldwin's testimony, this observation may be made in this case, where dealing with values as they existed

and conditions as they were during the years 1903, 1904, and 1905—testimony showing how many building lots a tract can be subdivided into and what such lots could be sold for separately has frequently been held inadmissible in condemnation proceedings, as such testimony is too uncertain and speculative”—citing cases.

It is true that the complainant's witnesses testified that they were valuing the tract as a whole; but their prices show that they have valued each of the company's subdivisions separately and merely added it up to get the total price, and have ignored all the costs of development and marketing which would have to be met in selling the whole. This method of evading the Farrington decision does not seem to me worthy of much consideration. The problem before the San Mateo County appraisers was the problem of appraising a tract of approximately 22,000 acres of land. It was not the problem of appraising separately a number of parcels in the particular acreages in which they were acquired. The tract was held as a whole, and should be appraised as a whole.

Of course, an appraiser is entitled to grade his property for purposes of valuation; but that does not mean that in grading it he should put a retail price on each of the grades. Complainant's own witnesses did not attempt to do that in the appraisal of Lake Merced properties. They did not attempt to subdivide that tract into the acreages by which it was originally acquired.

Now, the situation on the peninsula differs from the one to which Judge Farrington refers only in this: that instead of building lots, complainant's witnesses are dealing with country estates of slightly larger acreages, but retail propositions nevertheless. The tract they were sent out to value in 1913 was not a retail proposition—that was a wholesale proposition. The land was there,—22,000 acres of it. The price they should have put upon it was the price that it could be sold for as a whole. While they were entitled to grade it for purposes of appraisal they could not intelligently reach any such wholesale price by putting retail prices on the various parcels, and then adding them up. That is what Mr. Baldwin did in 1903, and it is that which Judge Farrington specifically disapproved of.

They admit, themselves, that no sane man would ever sell a property at retail in the particular parcels in which the company acquired it. What reason is there, then, for valuing those parcels as such, and then adding them up?

c. Smith on Peninsula Lands.

To refer more particularly to the testimony of the witnesses, nothing has surprised me more in this case than the argument advanced and the attitude assumed by counsel towards the testimony and personality of Mr. Norwood Smith, who testified for the city as to the value of the peninsula lands. As I stated, I thought that in this case we had a proceeding wherein the character of the issues and the class of men who were called here to testify was such that we had gotten away from the place where counsel upon argument would deliberately designate witnesses for one side or the other as dishonest, or what we call in plain parlance, crooks. I consider that in a measure it is something of a reflection on defendants' counsel in this case, whether it was intended such or not, that men for whose presence here we stood responsible in this testimony should be so classified. If there is any reflection in this characterization, I shall not reply to it in words. I gave your Honor some evidence on one occasion during the trial, at least, that I would not stand for the inclusion in the record of testimony of any man I did not believe was telling the truth. I prefer rather to meet counsel on his own grounds and demonstrate to your Honor that the witness whom counsel has so flagrantly accused is not and was not dishonest.

d. No Motive for Unfairness.

First of all, I want to call your Honor's attention to the fact that most of the witnesses who have testified in this case are what are technically termed "expert witnesses," and that as a rule in trying a case of this kind, counsel for each side calls as expert witnesses men whose views and opinions on the various subjects are likely to accord with counsel's theory in the case. The realty valuation that was made in this case was the first complete valuation that had ever been made of complainant's properties. Never

before in the history of the city had the city authorities called upon a man to value the Spring Valley real estate properties in detail. So far as I know, never before had the company done so, although Mr. Baldwin made a partial valuation of the Merced lands in the last case. I shall except from this statement also the general testimony as to water supply value given in the Judge Farrington's case, which did not pretend to cover real estate value.

There was then, at the time that Mr. Smith was employed on this case, no preconceived theory as to what was the value of the peninsula lands. There were no previous valuations to which this witness could have tied even if he had wanted to, unless Judge Farrington's blanket valuation of \$100 an acre for all the watershed lands owned by the company could be called a valuation. It manifestly was not one that could be applied in this connection, as Mr. Smith had only one division of the properties to value.

Furthermore, there is evidence in Mr. Parsons' testimony (2541-42) setting forth the instructions issued to all the city's real estate appraisers, in writing, by the City Attorney's office. They read as follows:

"What we want is the market value of the lands. That is, the value that a willing buyer would pay a willing seller, given a reasonable time to get together."

That was the first instruction. The second was:

"We want to know what somebody desiring to reproduce the Spring Valley properties would have to pay for the lands, in case he had to go out on the open market and buy them. In judging these, we instruct you that you are to consider the value of adjoining lands. That is, the market value of adjoining lands. We want you in all cases to be fair, so that we will, through your assistance, arrive at the real value of the Spring Valley lands."

There is affirmative evidence that the only instructions that this witness ever had—or any other real estate witness employed by the City Attorney's office—was to find the fair value of the properties in question, and with that in mind, what motive could

Mr. Smith have had to make a valuation which he believed or knew to be unfair? As a real estate man operating in San Mateo County, his personal profits dependent upon the increment in values of land in general, every motive would have prompted him to place as high a valuation as he consistently could on the properties in question. Counsel has wholly failed to show any motive which would have influenced this witness to reduce his figure below what he could honestly believe was a reasonable price. But he claims that Mr. Smith did not act either honestly or intelligently during his examination or cross-examination, and had cited voluminous quotations from the testimony which he contends support his statement. Before taking up this point in detail, I want to call your Honor's attention to two points which it seems to me have more or less important bearing not only on the testimony of the witness, but on the testimony of many other witnesses who have spoken here.

e. Smith's Cross-Examination Unfair.

First, I firmly believe that the type of cross-examination to which counsel has seen fit to subject certain of our witnesses has not been conducive towards eliciting the fair opinion of any witness. I do not desire to indulge in personalities, nor would it be fitting for a lawyer of my experience to criticise the methods of one who has so long and eminent a standing at the bar as the leading counsel for the plaintiff. But it has, nevertheless, been forcibly impressed on me all through this trial that unless our witnesses would practically concede every point which counsel wished to make—whether they believed it or not—they were antagonized from the start, relentlessly pursued down first one and then another line of reasoning, pinned down to categorical answers, denied the privilege of stating their answers as they wished, antagonized by tone of voice and attitude, and after a day or two or a week of this type of cross-examination, forced into a position where they had to regard counsel's questioning with a good deal of suspicion. It is very well to say that all a witness has to do is to answer questions put to him. When he has answered those questions and given his honest opinion, the matter is passed by. A few days

later the question is presented in a different form, and he is again asked his opinion—frequently on very trivial points—and perhaps his answer differs somewhat from the first one he gave, and then his first answer is called to his attention and he is asked if he has changed his mind, and what does he now think. If this kind of thing is kept up a sufficient length of time the witness gets into a frame of mind where he is bound to regard the questions with suspicion, and to evade an answer which can be used against him later from some other point of view. After piling up a record for a week or two weeks in length, as the case may be, counsel comes in here in argument and reads excerpts here and there which may and may not conflict, and says that it appears that that witness is either stupid or mentally dishonest. Again I repeat that it is neither my desire nor my intention to criticise counsel's method of conducting this case. That is a matter for his own judgment and his own conscience; but looking at it as I feel it my duty to do, from the standpoint of the witness, I believe that it is only fair for your Honor to take this into consideration when you come to estimate the weight of his testimony and the fairness and honesty that he has exhibited.

f. Tendency of Experts.

The second point I wish to make is that any expert witness who has once made up his mind as to a matter of valuation is going to support that valuation and conclusion to the best of his ability, irrespective of whom it favors. If there is any witness on the complainant's side who has not followed these tactics, I would be interested to have him pointed out. Let me cite a few examples:

Plaintiff's real estate witnesses in valuing the peninsula lands, in order to permit the complainant to place a separate value on its reservoirs, without exception testified that they valued the lands without considering the presence of the lakes.

Excerpt from Baldwin's testimony in regard to Lake Merced:

(487) "Q. Does any of it overlook the lake? A. It all borders on the lake.

"Q. Did you make any difference in the valuation between

the portions that overlook the lake and the portions that do not? A. No, I have not considered the lake at all.

"Q. You have not considered the lake in any aspect whatever? A. Absolutely not.

"Q. In other words, Mr. Baldwin, you mean to say now that you can go on that land, see that land there and completely ignore it from a scenic standpoint? A. That is what I have done."

(326) "THE MASTER—Q. Mr. Baldwin, if I understand your point of view as regards both the Lake Merced property and the Peninsula property, you reached in your mind and you have testified to the highest market value of that property for general sale in the open market as it is—not to another water company, nor to include the value of the water company itself, any different or otherwise than the general market value to purchasers at large? A. Yes. I have not considered the water element in any way.

"Q. Except in so far as you had in mind—well, here is a lake adjacent to it? A. No.

"Q. Did you consider that? A. Not at all. I valued this property—the watershed—just as if the lake were not there and it was a valley instead of a lake."

Hoag's Testimony:

(567) "Q. Does the value which you have placed on each of these separate parcels represent the amount for which those parcels would have sold in the open market on December 31, 1913? A. Yes, sir.

"Q. Have you made any allowance in your valuation for the fact that the reservoirs of the water company are at present where they are, and that they are filled with water? A. No, sir."

These statements are ridiculous on their face. Could any real estate witness honestly say that he appraised a piece of land overlooking a lake and contiguous to the water without reflecting into its value the scenic beauty of that lake and the value of the access to the water? The question answers itself.

But counsel says those witnesses were all expressing honest opinions and counsel is an honorable man. So are they all, all honorable men. They were merely seeking to sustain the theory

they set out to establish, just as Mr. Herrmann was when he talked of water sales for Southern California in terms of a million dollars per million gallons daily, and it subsequently develops that the total consideration was from \$1,000 to \$10,000 (8816-9022 et seq.). He attempted to give the impression that the valuation was fixed on a million gallon daily basis. But because Mr. Smith, in giving his testimony, relates a conversation with Mr. Husing and uses the words "their" and "them" as referring to the Spring Valley Water Company, when, as a matter of fact the sale went to Mr. William Bourn, President of the Spring Valley Water Company, through his agent, Mr. Pringle, as counsel well knew at the time of his cross-examination of Mr. Smith, he accuses Mr. Smith of mental dishonesty. Does your Honor suppose that Mr. Husing could have sold the land at the price he did had it not been to the President of the Spring Valley Water Company, after stating to Mr. Smith that he had held it all these years waiting for the company to buy it? The question answers itself. Mr. Husing knew that Mr. Pringle represented Mr. Bourn and that Mr. Bourn was President of the Spring Valley Company; Mr. Smith knew it, and counsel knew it, and your Honor saw Mr. Bourn's house going up on the property when you made the trip over the lakes. There was nothing mentally dishonest in Mr. Smith's relation of that testimony at all. He simply gave what was the practical effect of the whole transaction, and, as counsel's quotation of his testimony shows, he refused to relate verbatim the language that was used because he did not recall the exact words.

THE MASTER—I don't think we saw any house going up, Mr. Searls.

MR. SEARLS—Well, it might have been on another trip that I saw it.

MR. McCUTCHEN—And there is nothing in the record about it, Mr. Searls, to show that Mr. Bourn bought the property.

THE MASTER—I knew that Mr. Bourn bought the property; I suppose that is in the record.

MR. McCUTCHEN—No, it is not, but it is just as well known as if it were in the record.

g. Charges Not Sustained—Husing Sale.

MR. SEARLS—I ask your Honor to read over the testimony that Mr. McCutchen read the other day and see whether it makes out Mr. Smith as an intellectually dishonest man, if you leave off the peculiar inflection which counsel has given the words in his reading. The first charge relates to the Husing transaction—the conversation with Mr. Husing. As Mr. Smith summarizes the conversation Mr. Husing had told him that he had put a price of \$150 an acre on it for the Spring Valley Co., but that he would never pay it. He finally let it go for \$125 to Mr. Pringle. Now, Mr. Pringle was Mr. Bourn's agent, as I have said, so what possible mistaken impression could have been conveyed by the testimony as the witness gave it, whether the deed went to Pringle or Bourn or the Spring Valley Water Company? It was immaterial from Husing's point of view, and for the purposes of Mr. Smith's argument in support of his refusal to consider that price. Looking at the location of the Husing piece, running down into the Spring Valley land, as it does, it is obvious to any one that the Spring Valley Company, or those in control of it, could be the only persons interested in that purchase. The company would never have permitted any one but Mr. Bourn or some other officer of the company to build a residence on that property, within a few hundred yards of Crystal Springs Lake. They would have condemned the land to prevent it. It doesn't require any explanation to deduce that, and it doesn't brand any one as dishonest who deduces it; it doesn't brand him as unfair if he fails to use a price like that, particularly in view of the prices which were actually paid for the adjoining pieces.

I refer your Honor to the testimony of Mr. Tuchsén, for the defendants, who actually bought the adjoining pieces. It appears (3883) that he purchased the Knopf piece in 1911 for \$33,000, having on it improvements in the shape of a vineyard, a winery, a dwelling house, two barns, a reservoir, a pipe line and fences, for which he considered as a reasonable value \$16,000. Referring to Mr. Smith's Exhibit 47, your Honor will observe that his appraisal of this land was \$27,438, after the improvements had been removed.

Again, the Scalminini piece, Parcel 210, Mr. Tuchsén bought in 1911 for \$28,000, containing improvements consisting of a vineyard, a winery, a dwelling, two barns, a blacksmith shop, out-buildings, chicken-houses, etc., (3884) which the witness considered of a value of \$14,000. Mr. Smith valued this piece at \$8,782.50. The Bassetti place was purchased in the same year for \$16,000 (3884), including improvements consisting of a dwelling, a stable, fences, necessary out-buildings, etc., to the value of \$2,000 to \$2,200. Mr. Smith valued this piece at \$11,775, without the improvements.

The purchase price per acre of these three pieces, using the record acreage, and excluding the improvements on the same, was, on the basis of Mr. Tuchsén's testimony, as follows:

Knopf	\$49.20
Scalminini	65.40
Bassetti	89.80

Against this we have Mr. Smith's value on the

Knopf	\$41.04
Scalminini	79.02
Bassetti	75.48

In addition Mr. Tuchsén reports the sale from Bostick to Hooper in that immediate vicinity of 735 acres for \$50,000, in 1911, or \$68 per acre.

Now, bearing in mind the fact that Mr. Smith was valuing the Peninsula lands as a whole, as of the year 1913, and using prices over several years past, and his own ideas of that type of land, is there anything dishonest in his refusal to consider the Husing place on the grounds that its sale, so far as he could determine from a consideration of all the circumstances, was a sale to the Spring Valley Company or its officers, at a price of \$125 per acre, caused by exceptional circumstances of location, which did not relate to any other purchases in that vicinity; where he had, on the other hand, purchases which figured out on the basis that I have just indicated to guide him?

I submit that there is nothing dishonest in his action, and nothing more involved in his testimony than an attempt to answer

Mr. McCutchen's questions in a way that would present the facts in the most favorable light in support of his valuation, and that is what every expert witness who has testified in this case has done. I don't think that it shows a witness is dishonest because he has made up his mind what is a fair value for the property in the light of all the circumstances, and presents his evidence as best he can in support of that opinion. If any of the plaintiff's witnesses have taken a strictly judicial attitude in respect to my answers on cross-examination,—I haven't discovered it to date. They have all attempted to substantiate their figures and have presented facts to prove them in such form as would substantiate them. But I don't call that intellectual dishonesty, and I don't say that that entitles their opinion to no consideration. If your Honor thinks that Mr. Smith erred in not considering the Husing sale, then your Honor is entitled to take it into consideration, but I don't think your Honor is entitled to reject Mr. Smith's entire valuation as being dishonestly conceived for that reason; and in the light of all the circumstances, the McFarland offer, the Knopf sale, the Scalminini sale and the Basetti sale, I think Mr. Smith's valuation is much better justified than Mr. Baldwin's figures of \$150 on the Knopf, \$150 on the Scalminini and \$200 on the Bassetti.

h. La Honda and Waddell Creek Lands.

Similarly with respect to Mr. Smith's using La Honda and Waddell Creek lands. If your Honor selects one or two sentences, as Mr. McCutchen did, from the entire testimony of the witness, stating that those lands were better than the Spring Valley lands, and interprets the latter as counsel did, and without referring to the context, you may reach some more or less unsound conclusions, but I don't think that there was any danger of your Honor being deceived by the witness's language, knowing as you did the location of La Honda and Waddell Creek lands. As to the La Honda lands Mr. Smith said, page 3189, on direct examination:

"It is my judgment that the La Honda country is very much finer than lands of the Spring Valley that are of the same general type."

Possibly Mr. Smith could have limited the application of his comparison to certain parcels of the Spring Valley lands, and that

he may have spoken a little too generally, but even at that I fail to see any obvious intention to deceive. Later on he limits his comparison to the lands west of the lakes, as far as La Honda is concerned, and considers the Waddell Creek property as merely a better buy at the price than Pilarcitos.

i. Rengstorf Sale.

I must confess, with respect to the statement which counsel made as to Mr. Smith's attitude on the Rengstorf sale, during the trip over the properties, that I have no recollection whatever of the incident—I think, as a matter of fact, I was not present at the time he made this statement, having walked up the hill ahead of the others.

I don't know what effect his comment on the similarity of the Rengstorf property and the Husing property could have, as he was not valuing the latter piece. I think, however, that as counsel has made a statement outside the record, that in fairness to Mr. Smith I may state that I asked him the other day, without telling him why I wanted to know, his recollection of the conversation, and he gave his recollection just as he did on cross-examination—that he had limited his comparison in the first instance to the back part of the Husing property.

j. Mezes Sale.

With respect to the Mezes piece, to which counsel referred, and in which Mr. Smith quoted the asking price of Mr. Pringle as of date March 1, 1909, because he happened to take that asking price from the office books of the University Realty Company instead of having obtained it in conversation with Mr. Pringle, counsel says this is further evidence of mental dishonesty. I am totally unable to see the point in his contention. Why shouldn't the witness use the records of his office as a basis for his information? What concealment is there in his stating the contents of his records first, so long as he testifies where he got them, if he is asked?

k. Sales East of Buri Buri Ridge.

Again, the witness is accused of ignorance of sales between Belmont and San Bruno. If he was ignorant of certain sales east

of Buri-Buri Ridge in the San Mateo and Burlingame and Hillsborough country, the reason is easily explained—he did not look them up because he didn't consider that land in that section of the country was at all comparable with the land to the west of that ridge, and surely that is a point of honest difference of opinion. In a general way he knew that property in the vicinity of the Hobart tract was selling at very much higher prices than he had placed on the Spring Valley lands, but as he did not consider the Spring Valley lands comparable at all with the Hobart tract in location, or climate, or neighborhood, or accessibility, or use, or improved conditions, there would have been no advantage in his looking up those sales.

I am simply giving my own opinion as to the witness's probable course of reasoning. Counsel might as well say that the witness disqualified himself because he didn't examine sales in Alameda County. The mere fact that these lands were neighboring didn't necessarily make them comparable. Counsel's witnesses on the Merced property did not take into account the selling price of 25-foot lots in Parkside as a basis for selling Lake Merced, although Parkside is immediately adjacent. While the difference is not quite so great in the case of the Peninsula lands, it was Mr. Smith's opinion openly expressed that these lands to the east of the Buri-Buri Ridge were not comparable to the Spring Valley lands, and that the Spring Valley lands were not at all adaptable to the same type of development.

His whole theory, if you will read all his testimony, and not excerpts from it, was that the Spring Valley lands were adaptable to subdivision into the type of estates which the witness himself had been selling in the vicinity of Woodside and La Honda or Los Altos and Palo Alto, and that they were not adaptable to sale in small subdivisional tracts which prevail in the vicinity of Burlingame, Hillsborough and Easton.

It is for your Honor to determine whether his judgment in that respect was reasonable. We submit that it was. But having adopted this theory the natural basis for him to select as a check on his valuation was exactly the type of land that he did select, and not

the type of land which counsel would have him select. I venture to say that there is not an acre of land to the east of the grade of Buri-Buri Ridge which has not been affected in value by the town lot and small acreage subdivisions in and near San Mateo, Burlingame, Hillsborough and Easton.

Even if there are a few larger tracts there like the Hobart estate and the Howard estate, they have also felt the effect of this retail subdivisinal valuation which is attached to all the lands immediately adjacent to them.

Somewhere the line must be drawn between this type of valuation and that of the large-size tracts—country estates having a more or less rough land and wild scenic advantages. Mr. Smith drew this line along the crest of Buri-Buri Ridge, and his opinion in this respect was corroborated by Mr. Oliver, who has lived for many years on the peninsula and is familiar with its developments. Of course Mr. Smith does not draw the line nearly as sharply as Mr. Oliver does, and he is much more generous to the company, but nevertheless he does draw a distinct line on the crest of that ridge, and I believe that if your Honor will review in your mind all the differences in climatic conditions, and wind, and neighborhood, and accessibility, and improvements, and railroad transportation which characterizes these two localities, you will come to the conclusion that the line of demarcation was fairly drawn.

l. Granger Sale.

Counsel's next charge relates to the Granger property, where he says Mr. Smith didn't reveal the fact that Mr. Granger's road ran down somewhere near Half Moon Bay; and Mr. Smith's answer is that it simply did not occur to him to mention it. That didn't necessarily indicate dishonesty. He answers the question as to the means of egress frankly enough when he was asked the question, and if that property is much less accessible than the top of Ox Hill, and some of the adjacent Spring Valley property which was valued on a comparable basis, I haven't been able to discover it.

m. Whitman Sale.

Again, counsel thinks the witness is dishonest because he didn't consider the Whitman sale adjoining the Carolan property on the

east. That is absolutely explained by the line of demarcation which he draws with respect to the Spring Valley property and the lands to the east of them. He does make an exception with respect to the Carolan piece, one of the principal reasons apparently being the fact that the Carolan property was more or less cut off on the east by the Whitman property and is the only piece that actually touches Spring Valley property, and he limits the comparison to the back of the Carolan tract.

n. Parcel 49.

Counsel also read a number of excerpts from the testimony with respect to the witness' valuation of Parcel 49. I am not going to take the time to read all of the testimony on that subject. I ask your Honor, however, in considering the matter, to read all of Mr. Smith's testimony as to the valuation of that parcel; you will find it on 3219, 3565-70, 3575, 3580-85 and 3622 of the record.

o. La Honda Fog Conditions.

With respect to the charge that the fog conditions at La Honda were not correctly stated, I refer your Honor to the photograph of the Spring Valley relief map which is in evidence here, which shows that the San Gregorio Creek does meander to a very considerable extent after it leaves the vicinity of La Honda, and that there are a number of ridges between La Honda and the ocean which would tend to intercept the fog. I think I will refer to that map now.

MR. McCUTCHEN—There is a Government chart in evidence, Mr. Searls, which shows it very much more clearly, and that is the one Mr. Smith's attention was called to on cross-examination.

THE MASTER—I will look at it, Mr. Searls.

MR. SEARLS—It is a matter of small importance, but the charge has been made as evidence of the dishonesty of the witness, and I desire to refute it.

p. Smith's Qualifications.

Reflection upon counsel's argument has led me to the conclusion that he has not only totally misjudged this witness, but that he has absolutely failed to grasp his point of view and the premises with which he started. If your Honor will read the qualifying testimony

of Mr. Smith, you will note that he is a resident of Palo Alto, and that his office is there, that he had been engaged in the real estate business in San Mateo County for the last five years preceding his testimony, and that during that time he and his partner have been almost exclusively engaged in the sale of country estate lands in the southern part of San Mateo County. During that time it appears that he sold over \$1,600,000 worth of land, or a total acreage of 18,156 acres (page 3186-3190). If you will compare that with Mr. Baldwin's acreage sales, or rather the sales of the firm of Baldwin & Howell, made over a period of eighteen years, which totals 6,630 acres, you will find that Mr. Smith has sold nearly three times the acreage of Mr. Baldwin in country estates; that Mr. Hoag never sold any country estates; that all he has done in a real estate way was to buy some 250 acres of land near Hillsborough and subdivide it into building lots. Counsel asks why we did not cross-examine Mr. Hoag. I will answer him. We did not cross-examine Mr. Hoag because neither Mr. Steinhart nor myself felt that he had qualified with sufficient familiarity with lands of this type to place a credible valuation.

q. Baldwin's Qualifications.

As an interesting commentary on the results which Mr. Baldwin seeks to derive from the purchases and sales which he has personally made in San Mateo County, I have had compiled from his exhibit No. 40 a table showing a segregation of these purchases and sales so as to give the total of the subdivisinal purchases and sales purchases for the Spring Valley Water Company and purchases and sales of country estate lands separately. There are included in the first column a number of sales having a considerable acreage, but they are included in the district east of the Buri-Buri and Las Pulgas ridges, and running as far south as Menlo Park and within the category of lands which Mr. Smith described as being so affected with subdivisinal value as not to be typical country estate lands, and hence not comparable with the Spring Valley peninsula properties.

I have also a table showing a classification of Mr. Smith's sales, which is made up from his testimony in the record; it also includes another segregation of Mr. Baldwin's sales in the locality. I will ask that these tables be designated 16 and 17:

TABLE 16.

EXAMINATION OF BALDWIN'S EXHIBIT NO. 40 TO SHOW THE SMALL AMOUNT OF
ACREAGE BOUGHT OR SOLD BY THE FIRM OF BALDWIN & HOWELL, EXCEPT FOR
SPECIAL PURPOSE OF SUBDIVISION FOR BUILDING LOTS OR PURCHASE FOR THE
SPRING VALLEY WATER COMPANY.

Classification of Baldwin & Howell's average sales or purchases in San Mateo Co. marked "V" in "Miscellaneous Sales."

Purchase or Sales for Subdivision into Building Lots				Purchases for S. V. W. Co.			Purchases of Country Estate Land		
Date	Dist.	Ac.	Cost	Dist.	Ac.	Cost	Dist.	Ac.	Cost
2/11/97	S. M.	32.88	130,000						
10/12/97	S. M.			Millbrae	16.39	4,097.50			
1/28/98	S. M.	3.93	3,144						
2/9/98	S. M.	509.00	67,500						
6/27/98	S. M.								
4/2/00	S. M.	15.50	11,180	Baden	2.85	1,995.00		51.00	15,513
2/20/01				"	1.43	1,025.00			
1/10/02	S. M.	295.61	105,000	Ravenswood	43.99	10,997.50			
7/29/02	Menlo	3.93	20,000						
6/30/03	S. M.	10.40	12,300						
9/19/03	Katharine Tract	5.309	3,981.75						
3/7/04	S. M.	20.00	80,000.						
2/2/04	S. M.	81.00	50,000.						
7/1/05	Redwood	1153.60	152,500.						
8/21/05	S. M.	109.08	200,000.						
9/8/06	S. M.	14.00	105,000.						
8/13/07				Upper Crystal Spgs.	451.01	33,825.75			
1/20/09									
4/9/09	Redwood	22.786	36,457.60	Millbrae	140.395	70,197.50			
5/1/09	"	17.276	19,003.60						
6/1/08	Menlo	7.73	27,500.00						

(739.00 50,000.)
Adjoining S. V. Parcel No. 202 Baldwin did not make sale—Sale by Pickering & Tuchsens Subdivided 1911 (p. 3885). Not incl. by Baldwin in his list of acreage sold.

It seems to me that this extensive experience which Mr. Smith has had in buying and selling the particular type of land to which the Spring Valley property seemed to be adaptable qualifies him fully to make the appraisal that he did in this case.

As a further qualification, however, I ask your Honor to bear in mind his entire familiarity with the Spring Valley properties themselves. This familiarity was fully evidenced during the trip we took over the property. Mr. Smith was called on in every instance to locate every piece of property which we visited, and never once did he fail to know the tract and to know the price which had been paid for it, and practically everything about the transaction. Equipped with at least a partial college education and this thorough familiarity with the business of selling country estates and the expert judgment of country estate valuation which his really remarkable experience had given him, Mr. Smith undertook the valuation of the peninsula property of the Spring Valley Water Company on behalf of the city.

r. Guiding Considerations.

Now, your Honor must bear in mind that the witness was valuing residential property of a type that was incapable of being appraised on the basis of its earning capacity, and as he believed, of a type which was similar to the land which he had been selling, and totally dissimilar to the small subdivisions of land lying to the east of the Buri Buri Ridge. As I have said is it at all remarkable then, that he did not know and did not attempt to find out the selling prices of land to the east of the Buri Buri and Las Pulgas Ridges, lying between Belmont and San Bruno? The land that he was appraising as he saw it, was the wild rough land lying to the west of that ridge, having in it many beautiful wooded spots, some of it with much scenic attraction, some of it with a superb lake view, most of it with more or less steep and rugged slopes, none of it inhabited, none of it having any improvements, paved boulevards, public utility facilities or transportation facilities, except by

automobile. All of the land to the east of the two ridges to which I have referred is immediately accessible to either railroad or street car transportation. He found the climate to be much less desirable than that to the east of these ridges, and it was his conclusion that the only type of subdivision to which that land was adapted was the country estate type which he had been selling.

He was further impressed with the fact that there were 22,000 acres of land held in one ownership which he was to value as of a given date, on the basis of what it would sell for to a willing purchaser having the ability to pay for it within a reasonable period prior to or following that date. He was employed, as your Honor will recall from his testimony, in the first instance to make an appraisal for condemnation purposes, and his appraisal was made according to the county maps, and not according to the Spring Valley maps. If the condemnation had gone to trial first it would have been the city's privilege to open the case and to establish the subdivisions of property for the company which they would have had to follow in its valuation. As it later turned out, the rate cases were tried instead and we had to follow the company's subdivisions.

How did Mr. Smith go about his task? Did he merely ride over the land as Mr. Baldwin did in an automobile, following the paved roads, viewing a large part of the property from across the lake, putting a valuation on parcels as a whole without subdivisions or gradation (p. 441-445-497-498)? Before I answer that question I want to read briefly from Mr. Baldwin's testimony on that subject, showing just exactly how he did that.

Mr. Steinhart, in cross-examining Mr. Baldwin, asked him with respect to Parcel 5-2, which, as your Honor will recall, was the large parcel near Pilarcitos, containing some 2900 acres. I will read from page 440 of the record:

"Q. And you valued that at \$100 an acre, did you not?

"A. \$100 an acre.

"Q. That is a 2800-acre tract. Did you grade that tract?

"A. No; not specifically; I did not make any segregation of it, I made a lump valuation.

"Q. You made a lump valuation of that 2800-acre tract?

"A. Yes.

"Q. Does that include various classes and grades and kinds of land?

"A. Yes, sir.

"Q. Will you describe the different kinds of land, the extent of these different kinds of lands, the acreage in the different tracts of land?

"A. No, I could not do that.

"Q. Have you any idea how many gullies, how many gulches, or how many ravines there are in that land?

"A. No, sir.

"Q. What was the range of valuation you put upon the various parcels? You say you did not grade it, so you did not put any range of valuation upon the different parts of that tract of land, did you?

"A. No, sir.

"Q. How near did you go to the portions of this land east of and adjacent to Parcel 7 and Parcel 28?

"THE MASTER—Always give the map, Mr. Steinhart.

"MR. STEINHART—Very well, your Honor; it is Map 2.

"A. The 2900 acres is mostly on Map 3.

"THE MASTER—But this particular portion is on Map 2, the portion that is adjacent to 7 and 28."

Then a discussion ensues in which Mr. Baldwin states that he went down the road to the Stone Dam forty times, and along the road to the Spring Valley Ridges four times.

And at page 419:

"A. I think I might answer those questions and maybe some others that you are going to ask by saying that I did not walk over every one of those parcels of land. My examination was confined largely to the view that I would get going up in a machine and stopping at different places. This parcel seems to be somewhere near the road. The probability is I was close enough to see it, to get a general idea of it.

"Q. I think it is three-quarters of a mile from the road, is it not?

"A. Maybe."

And to be fair to Mr. Baldwin, I will read the redirect examination.

“Q. With regard to your acquaintance with this property, or your going over it, to what extent is it necessary to go on any particular piece of this land in order to obtain an idea of its character or value? Take Tract 92, for instance, about which you testified, and which you said you had never been on; that, likewise, appears on Map 3.

“A. That property is clearly visible from across the lake, it can be seen from nearby; I did not consider it was necessary to go over every foot of the land.”

That was on pages 441, 445, 497-498.

MR. McCUTCHEN—Mr. Searls, didn't Mr. Baldwin testify that he had been very familiar with that land for a great many years, and had been upon it very, very frequently?

MR. SEARLS—In a general way, yes, riding over it in machines. I do not think he testified he ever went on it and made any segregation to determine how much approximately there was of one class or another class of land. That is a point which seems to me has a very important bearing upon valuation. I do not set myself up as knowing very much about San Mateo County real estate, and I defer to counsel's opinion on that every time, because he has certainly shown that he is qualified. But it does seem to me that the complainant's witnesses went on various pieces of land and viewed most of them from distant points; that their valuation was influenced too largely by a general view; that the relative acreage of land which has scenic view, or was level, or beautifully wooded, was not sufficiently taken into consideration in connection with the acreage that did not have those advantages. That is what Mr. Smith avoided in his valuation by making careful gradations of land, types of which your Honor has in evidence here in one of his exhibits.

s. Smith's Method of Valuation.

Mr. Smith went over the property and surveyed it generally—the 22,000 acres he was valuing, then taking the County map

and selecting each Government subdivision or section with the aid of his Brunton compass, he went through each section, subdividing it and grading it on his map according to the different types of land which he found. Having done that he placed a valuation on each type, based on his knowledge of what that type of land would sell for, not on any particular sale, not upon any particular line of reasoning from premises to conclusion. As he said in the testimony which Mr. McCutchen read to your Honor the other day—in his experience estate land cannot be valued on that basis—a man has to know what it will sell for, what a given class of it will sell for, what the effect upon the price will be of the addition of tare or other considerations. As the lands are sold invariably to people of means, the price which a man of means will pay for a country estate is not governed by any particular consideration of the price paid for other property, and certainly not by any earning power of the land. It is largely a psychological question. It is a question of how badly he wants the land. Assuming, as is generally the case, he has the means to pay almost any price for it within the limits of reason, it is not surprising that a very wide difference exists in the prices of lands which are apparently similar in character.

Mr. Baldwin in his testimony has not explained the mental processes by which he reached his conclusions. I want to read briefly from his testimony on pages 445, 446 and 447 of the record:

"Q. Will you now turn to Parcel No. 27? That is on Map 3. You valued that at \$30 an acre, did you not?

"A. Yes.

"Q. Will you describe this land a little more fully?

"A. Those are triangular pieces that are on the edge of the ridge, the summit. My reason for putting a nominal figure on those was simply because of the shape.

"Q. What difference did that make, if you were valuing the tract as a whole?

"A. For this reason: In valuing it as a whole, I took this into consideration, that it had to be acquired in those shapes, and as I said before, I think that in many instances the valuation of these pieces by reason of their shapes is

not of advantage to the company so far as establishing the value is concerned.

"Q. Did you value those tracts as a whole, as a part of the whole, or did you value them separately?

"A. I valued them separately, but only in establishing the value of the whole.

"Q. That may be intelligible to you, Mr. Baldwin, but it is not to me. Did you value those as separate parcels, giving the valuation they are entitled to as separate parcels, or did you value them as a part of the whole?

"A. I valued them, I should say, separately, and that would apply to all of it; at the same time, it established the value of the whole tract, which value, I repeat, I consider a conservative value for the entire tract.

"Q. Did you value the separate portions you have valued here higher or lower because you valued them as a part of the whole?

"A. I valued those lower separately than I would if they had been attached to property adjoining and had been a part of it.

"Q. Did you value Parcel 5-2 lower or higher because it was a part of a whole? A. I don't think I know what you mean.

"Q. You have just stated that you valued Parcel 27 lower than you would have if you valued it as a whole with the rest of the property; now I am asking you whether, when you valued Parcel 5-2, you valued it lower or higher because of the fact that it was a part of a whole?

"A. I valued it higher than I did Parcel 27 because it was in much more advantageous shape than those triangular pieces; in other words, if it were necessary to acquire this property on December 31, 1913, and you had to deal with these various owners at that time, the valuations that I have put on each tract is what I would consider a conservative price to pay for each particular tract, and in order to get the whole piece. Now, if you are dealing with owners that have only a small piece of land like that, I do not think that the valuation should be as high as a tract that could be used to advantage.

"Q. When you valued Parcel 5-2, did you value it at the price you figured would have to be paid for that

parcel separately, or did you value that parcel in relation to the whole?

"A. I valued that on the basis of what should be paid for it in acquiring the 22,000 or 23,000 acres, that would be a fair price to pay for that portion of the property.

"Q. Did you figure on paying any additional price for that portion of the property because of the fact that it was a part of the 23,000 acres?

"A. Not at all.

"Q. You didn't?

"A. No.

"Q. In other words, when you valued these parcels here, you did not value them at a higher price because they were a part of a large acreage, to wit, 23,000 acres?

"A. No. I did not.

"Q. Why didn't you?

"A. Why should I?

"Q. Well, you don't think it would have been the proper way of valuing them?

"A. No, I do not. I looked at this way, that there were 22,000 acres of land there to be acquired from these various owners, assuming that they were in various ownerships, and then I considered what each one of those parties should receive for the property at that time, on December 31, 1913.

"Q. And you consider the amount that should be paid—the value of the property as a whole—the value of the separate subdivisions. Is that correct?

"A. Quite correct."

THE MASTER—Mr. Searls, can you refresh my memory in this regard: does Mr. Baldwin take as his means for determining the value of the 22,000 acres what it would cost the company to acquire it in the particular tracts, omitting I presume the cost of acquisition in the way of commissions, and overhead, and so on; on the other hand, Mr. Smith gives the value which the company could receive if it sold this land in the open market free of water uses.

MR. SEARLS—That was my understanding of the method. I will let counsel speak as to Mr. Baldwin.

THE MASTER—Is that your understanding, Mr. Greene?

MR. GREENE—That is not my understanding.

MR. McCUTCHEN—My understanding is that Mr. Baldwin fixed the market value of the entire tract and got at that market value by fixing the market value on these individual parcels.

MR. SEARLS—He says right here he figured on what the company would have to pay in buying from the separate owners.

MR. McCUTCHEN—I think that is only another way of saying what would be the market value of those particular parcels if they were to be acquired at that time.

THE MASTER—Let me ask this question: Mr. Smith, from my recollection and from what you read, considers the depressing influence which the sale of so large a tract as 22,000 acres would have on the market value of acreage property.

MR. SEARLS—He considers the depressing influence in some instances and the appreciating influence in others. Your Honor will recall that he testified that the rough lands on the other side of the lake would be enhanced in value by being made a part of this tract.

THE MASTER—Yes. I recollect that. Generally speaking it is a fact of course that if a large acreage like that were thrown on the market you would run the risk of glutting the market and therefore depressing the price, especially when you consider the fact that the comparative sales have been established in part by reason of the fact that this land is there to satisfy it. What I am getting at is this: am I or am I not to consider that? On the other hand, the fact that the land is in one holding makes it much more valuable to the company than if it were a series of isolated tracts. In other words, you have that difficulty that is inherent as to whether you consider the market value—whether you sell out into the community or sell from the community back into the company. You suggested in respect to the Minnesota Rate decision that the reason why we must not consider the costs of acquisition that would undoubtedly take place in getting it the fact that the court is dealing with a problem that is in a sense lifting one's

self by your own boot-straps, that the lands have a value by reason of the presence of a railroad, and I assume from what you state that they say if you took the market value of similar lands in the vicinity you have a fair basis. Are we to take that literally and say that just as we omit commissions and costs of acquisition so we must omit the question of depression due to throwing a large acreage on the market on the general grounds of policy?

MR. SEARLS—I think that we should, your Honor, to a certain extent. The point I am making is that in giving effect to comparable sales either as a basis for valuation or as a check upon valuation already made—the latter being Mr. Smith's method—you should select sales that would reflect something of this wholesale element in it and not select sales that are purely retail prices.

THE MASTER—I think that is true. There is a difference between a wholesale proposition of 1,000 acres maybe, or 500 acres; and one of 25,000 acres.

MR. SEARLS—Mr. Smith is the only man of all the witnesses here who testified as to any particular familiarity with the business of selling country estates. Mr. Hoag never sold any, and Mr. Baldwin never sold any to the west of the ridges in question, the Buri Buri and Los Pulgas Ridges, except the Pomponino Ranch, so far as the Tabulation of Sales indicate. I ask your Honor, therefore, whether there was really anything superbly egotistical in his statement that he was the only man here who knew the value of those lands. What was it that enabled him to know it? Simply his wide experience in dealing with the kind of people who buy these lands; in knowing the range of prices which they would pay; in knowing the effect of the different types of estate lands upon the desirability and salability of such tracts. It was this knowledge which Mr. Smith brought to bear in fixing the prices on his subdivisional units, and it was because he felt that it had to be valued this way that he did not and could not give to your Honor the particular line of reasoning—or mental process—which might

be applicable to every case. It *was* a matter of real estate instinct. None of complainant's witnesses have explained any mental process by which they reached their figures. Of course, counsel might say we did not ask them to explain them; I take it that if they valued the land as they claimed they did, as country estate land, they would be no better able to give it than was Mr. Smith. But Mr. Smith did not stop with a preliminary valuation made in that manner; he came back again and again to some of these parcels, viewing them under different climatic conditions, from different angles or points of view, and was impressed with different features than those which at first had been apparent to him. It was exactly the process of reasoning that a prospective purchaser would go through in buying a country estate. The only difference was that the prospective purchaser would have in mind the maximum price that he alone would be willing to pay for that estate and Mr. Smith had in his mind the composite of the maximum and minimum prices which he knew had been paid for that class of land—and as his mind was influenced one way or the other by these views and impressions, he altered his figures which he had first made, and those alterations are the ones to which counsel alludes. Counsel also referred to certain unexplained correction in the notes which Mr. Smith had here at the time he testified, among them being the changes in the figures by crossing out certain figures and the interlineation of others. The witness explained those in part by saying that the changes were made upon his subsequent visits to the property, on which occasions he sometimes added a percentage or subtracted a percentage and brought out odd figures, and in other cases when it developed that the rate cases would have to be tried and that he would have to fit his valuation into the Spring Valley subdivisional maps it was necessary for him to subdivide these various gradations so as to fit the Spring Valley lands, and this again caused a recombination and alteration in the original figures. Counsel's conclusions that those figures were the result of a deliberate attempt to grade those parcels after he had valued

them is not warranted by anything in the record. It is wholly unfair and unjust to the witness

Mr. Smith bore another fact in mind in making this appraisal, and that was that he was appraising the lands as a whole, and that those lands as a whole could only be sold to a syndicate within any reasonable period of time, and that that syndicate would have to make a profit out of them if it were going to purchase them. He refers to that fact repeatedly (3864-3867). He figures that in order to subdivide these lands into country estates of the type which he would be able to sell, it would be necessary to expend \$2,000,000 in the development of land, selling costs, interest and taxes, and that the syndicate would have to make a profit.

Now there isn't anything impossible about a man of Mr. Smith's experience in the real estate business bearing these factors in mind in fixing valuations, and there is no detraction from the credibility of his testimony because he is unable to detail the mental process through which he went in valuing each piece. As he says himself his figures were the result of all these ideas. They would clearly be worth nothing if he had not had experience and competent means of reaching his conclusions, but in the light of his experience and the care which he took in his valuation, I submit that they are entitled to very great weight. They are entitled to much greater weight than the figures of Mr. Baldwin, who never saw a large portion of the property except at a distance; who never sold any land of this type to any considerable amount; who didn't grade the land that he valued in an accurate manner; who did not tie to any particular sale; who absolutely ignored the wholesale feature of the valuation by merely adding up his retail valuation of each parcel and said that represented the value as a whole. They are of very much greater value to my mind, than the figures of Mr. Hoag, who never sold any estate land of this type; who so far as this record shows, knew nothing about estate sales in the southern part of San Mateo County, and who otherwise valued the lands along the same lines as

Mr. Baldwin. They are of much greater value than the figures of Mr. Rodgers, who as agent for one or two extremely wealthy estates has been holding land in the vicinity of Millbrae at a price which he hasn't yet got, and probably never will get, and whose testimony is almost entirely based upon offers the validity of which does not appear in the record. I am sorry Mr. Steinhart did not ask him whether they were written or not. It would have been of interest to know. They may have been cursory offers which wouldn't have placed the offerers under any obligations if they had been taken up.

t. Comparative Sales.

I could rest here and say that on his qualifications and his method of appraisal Mr. Smith has justified his figures beyond any question, but I am not limited by the record. He absolutely checked his figures by reference to the only adjacent sales which were available. It was not his method to ascertain these sales first and fix the valuation of the lands afterwards. It was rather his method to appraise the land first and test the reliability of his appraisal afterwards. And this he did in a most logical manner. He learned of the sale of the Scarpa piece lying immediately to the west of the Montara Mountains, and which he thought might be comparable with the lands on the crest of that ridge, and he learned that there had been a sale of the Carolan place which immediately adjoins the Spring Valley property on the crest of Buri-Buri Ridge. He learned of the sale to Finkler from Marchand on the crest of Las Pulgas Ridge adjoining the Spring Valley lands, and he had the McFarland tract for sale on the crest of the ridge immediately west of the Spring Valley lands, and south of the Half Moon Bay road. He also had the information which Mr. Tuchsien furnished as to the sales on the Canada. He went on these tracts and graded them in the same way in which he had graded the Spring Valley property and appraised them in the same manner he had appraised the Spring Valley property, before he knew the price at which the tracts had been sold—

MR. McCUTCHEN—Mr. Searls, there is no evidence that he went on the McFarland tract.

MR. SEARLS—You are right about that.

MR. McCUTCHEN—Or that he went on the Marchand property and graded that.

MR. SEARLS—I didn't want to make the statement so general; I had in mind the Scarpa and the Carolan pieces. After he had completed his appraisal he went and found out the prices at which they had been sold and they checked his figures within a very reasonable degree.

Now, I ask what more can counsel want in order to establish the fairness of this witness's appraisal; ample experience—careful gradation—deliberate judgment and an absolute check. Counsel could not disestablish the fairness of Mr. Smith's appraisal by any fair analysis of his line of reasoning so he took two methods. First he demanded the mental processes of the witness and found that he could not give them exactly, because they were not susceptible of exact definition, and then he tried to brand him as unfair because he had eliminated from consideration certain sales of property which in the first instance he had stated were non-comparable, and because he included in the composite of his experience certain other lands which differ from the Spring Valley property somewhat in accessibility, but are in other respects very similar in type; and he further brands Mr. Smith as an impostor because he didn't place what is practically a retail valuation on this entire 22,000 acres. He comes into court here and reads selections from Mr. Smith's testimony, which he says on their face disqualify him.

If I were not fully satisfied that counsel has misapprehended the real point of view of this witness, I would brand counsel's argument itself as an unfair performance. As it is I feel sure that he is totally mistaken; and I feel sure that if your Honor reads all of Mr. Smith's testimony, and particularly his testimony on direct examination, that your Honor will be convinced that my conclusions and not counsel's are correct.

It is a serious matter to accuse an expert of being dishonest, and I believe that your Honor should give the question very careful consideration before giving any weight to the accusations which counsel has made. I shall not accept counsel's invitation to take a fling at his witnesses in the terms which he has used toward mine.

I have already pointed out, and the record shows, that Mr. Smith was infinitely better qualified to value these peninsula properties than were Mr. Baldwin or Mr. Hoag, and that so far as the record shows, he took infinitely more care in the valuation. The heterogeneous collection of sales which Mr. Baldwin threw into this record means nothing, unless they are considered in the light of their applicability. The list which he files shows sales of town lots, small acreage properties, and a few—very few—country estates, most of them within the subdivisional district on the Bay side of the ridges.

MR. McCUTCHEN—It is hardly fair to say that Mr. Baldwin threw those in, Mr. Searls. That list was presented here in response to Mr. Steinhart's request.

MR. SEARLS—Then I am under a misapprehension regarding that.

THE MASTER—Yes, that is my recollection of it too, Mr. Searls.

MR. SEARLS—The point I was making is that Mr. Baldwin did not show the applicability of any of these sales to the various portions of the property he was valuing.

Mr. Smith has used the sales which he made only in the most general way, showing that the average prices of all of them represent something in the way of an average valuation of the particular type of land, and this, as I have said, is entirely reasonable, because of the very wide influence which the individual preferences or ideas of the purchasers of this class of property has upon the prices of the individual pieces.

u. Oliver on Lands East of Lakes.

In passing I desire to refer briefly to the testimony of Mr. Oliver as to the valuation of the lands east of the lakes. I presume that your Honor has wondered why we called Mr. Oliver to appraise these properties, inasmuch as we have not included his figures in our total summation. Our reason for calling him was solely because Mr. Oliver's opinion reflects the point of view of a certain class of purchasers who would be among those apt to invest in the type of property which the Spring Valley owns as a whole.

THE MASTER—I don't think Mr. Oliver would.

MR. SEARLS—That may be a question, your Honor.

Mr. Oliver is a successful real estate man. He lives on the Peninsula in the neighborhood of the select section where counsel resides. He is generally familiar with the San Mateo lands. He has no familiarity with any particular sales. His success has been attained more as a speculator than as an investor, and he is successful because he has been able to buy the land at very low prices and sell it at fairly high prices. His testimony in my opinion, and I believe that in reading the record of it your Honor will come to the same conclusion, reflects the views of the purchasing speculator. The testimony of Mr. Rodgers and Mr. Baldwin, in my opinion, reflects the opinions of speculators who have already purchased and are holding on for the market to go up where they can sell at a good profit. Neither of them reflects the fair value of the property. Neither of them are entitled to have their views taken at their face value. Both of them have in their evidence here demonstrated to my satisfaction at least, that the valuation made by Norwood Smith is eminently fair to the company and to the city alike, and I ask your Honor to examine the record with a view to determining whether my observation in this respect is correct.

There remains to be discussed one question in connection with Smith's appraisal of peninsula properties—the question of reservoir and water valuation.

v. Valuation of Lakes by Real Estate Appraisers.

The Supreme Court said in the Minnesota Rate case that real estate impressed into the public use should be valued on the basis of its availability for other purposes as determined by the market value of other lands similarly situated and similar in character. It is indeed a difficult thing to value lakes from a real estate man's point of view, but that is an element of value to be considered, and we submit that our witnesses, Mr. Paschel and Mr. Smith have considered it in the only way that it can be considered, by reflecting into the value of the adjoining land, and indeed this is necessary to an intelligent appraisal of these adjacent water shed lands. The witnesses for the complainant have all testified that they ignored the question of reservoir values and water values. What did they intend us to conclude from that statement? Do they intend us to conclude that they went out on these lands on the side of the Spring Valley lakes and went down to the water's edge and turned their backs to the lake and said—"Hypnotic suggestion No. 1—the lakes are not there—what would the lands be worth without them?" Or did they go up on the lands and shut their eyes and say: "The lakes are not there, we cannot see them—what is the value of these lands without them?" If they attempted to do anything so patently impossible as that their valuations are not worth the paper they are written on—but I don't think they did.

Your Honor will find on considering this argument that I am going to be more charitable to counsel's witnesses than he has been to my witnesses. I think that they went out and valued those lands as they lay before them, having in mind the scenic view and the scenic beauty of these lakes, and every item of value that this scenic view and scenic beauty gave to these lands is reflected into their desirability for purchase as country estate, and included in the valuations made by these gentlemen.

In that manner, their valuations are certainly entitled to some consideration. That is the interpretation that I have

put on their testimony, whether that is what they said they did, or not.

Mr. McDuffie alone conceived the ingenious idea of separating the lake with a margin of land around it, and selling off residential lots with their back line on this margin, and then after he had done that, holding up the owner of his lots for an additional lot to get access to the lake. That might have been done in the good old days, but I know that a man of Mr. McDuffie's honesty of dealing would never really try anything like that in practice—at any rate, neither Mr. Baldwin nor Mr. Hoag conceived of any such ingenious idea. If a man bought Mr. McDuffie's real estate parcel he would want the parcel to run to the lake and not to a margin a few feet away from it.

Now, if these witnesses did reflect part of the value of these lakes as real estate propositions into the valuation of the adjoining lands, what right, I ask your Honor, has the complainant to come in here and duplicate this valuation by adding a reservoir value for the lakes? As I have before insisted and I again insist the conception of real estate value and a water system value are two separate and absolutely inconsistent conceptions. The properties have one value or they have the other value if they are separately considered. You cannot add the one to the other and find that the total represents the market value, because the two uses are absolutely inconsistent—they are alternative and not correlative,—they overlap each other. If the water system value is greater than the real estate value, that may be taken into consideration in determining the market value, but it cannot be taken into consideration by adding the water system value to the real estate value and saying that the result will be the market value. You have simply duplicated your valuation when you do that.

Now, that is just what we sought to avoid in our valuation. We followed the ruling of the Supreme Court in the Minnesota rate case, as far as we could, valuing the watershed lands as real estate, with all rights appurtenant thereto, and reflected into this land the value of the reservoirs. Mr. Smith then determined by a method which counsel has described in his argument, which appears in the record, and which seems to me entirely reasonable, the increment of the

value of these watershed lands adjoining the lands, which he had given them by reason of the lake view which they had, and the accessibility that they had to the water. Mr. Dillman had valued the reservoirs and determined as nearly as he could their present market value, based on the original cost, plus a fair increment. We subtracted from the market value of the reservoir lands, thus obtained the increment which Mr. Smith had derived in his computation, and said that if we add to Mr. Smith's valuation of the remaining lands the difference between his reservoir increment and Mr. Dillman's valuation of the lakes, then we have given to these peninsula lands all the additional value to which they are entitled by reason of the existence of the lakes.

There is no question about the logic of our valuation principle. There is no question about the fallacy of the principles which complainant adopted in their appraisal. It remains for your Honor to determine whether Mr. Smith's estimate of the real estate increment given by the presence of these lakes was fairly and reasonably determined. The long cross-examination which counsel read into this argument did not, to my mind, affect the reasonableness of Mr. Smith's conclusions. If your Honor can find from the record any more logical or plausible way of reaching the conclusions we are willing that you should substitute it. As it is, counsel has offered us nothing in the way of assistance and has sought only to tear down what our witnesses have *prima facie* established.

The reasoning I have just given applies in a similar measure to the water system value of watershed lands. I think it was Mr. Hazen who said in his closing testimony (p. 8485) that he did not make it a practice to separate reservoir land and watershed lands in valuing them for water supply purposes, and it would seem that Mr. Hazen is perfectly consistent in this statement. In order to make a valuation of these peninsula properties it is illogical to value the watershed lands as real estate properties and the reservoirs as water system properties; and it is equally illogical to say that you have completed your valuation when you add to the sum of the two the value of the water rights obtained by taking the total water yield of these lands and multiplying it by a price per million gallons daily.

You are again duplicating by taking their value for absolutely inconsistent uses. If you are going to value watershed land as real estate, you must value everything that goes with it as real estate, including the riparian rights on the lakes or streams, including the right to take and divert the water which flows over the land for domestic use or for irrigation uses on the land. If you don't do that you haven't given the market value of the land, even from a real estate man's point of view.

But Mr. Baldwin testified he did not do that, and Mr. Smith testified that he did do that. We submit that there is nothing to be added, then, except the value of whatever rights the company may have acquired from the owners of the land riparian to the streams and below its point of diversion.

I will read briefly from Mr. Baldwin's testimony on this point, on cross-examination, page 468:

"Q. * * * Now, I want to go a little more generally into some of the methods you used in regard to your valuation in general. Mr. Olney asked you this question: 'Let me ask this question, Mr. Baldwin: In valuing these lands did you assume that the purchaser of the land, for instance, would have the right to put down wells?'

"A. I do assume that. I assume that a man would have the right to do with that land just as he would do with any other land he was buying there.

"Q. And to the extent then to which the ownership of the land gave him the right to use the water for domestic purposes, or irrigation, or anything else, on the land, you would assume that he would get whatever rights went with the land and in the nature of things the water? A. Yes.'

"Q. In other words, you assumed there that the owner had the full use of the land, didn't you? A. You are speaking of the watershed lands?

"Q. Yes. A. Yes, that is my understanding.

"Q. Now, I suppose this would be a fair assumption, would it not, if, for example, the owner were on the side of the hill, did you assume that he would have the right to the use of the water running down that hill or that he would not have the right to the use of that water at all for his own purposes?

"A. Storm water or spring water?

"Q. Let us say, it does not make any difference?

"A. I assume that he would have the same right to use water of any kind, whether it is storm waters or springs.

"Q. I am not trying to trip you up on the law of water rights, Mr. Baldwin; I am simply asking you as to what factors you used in your valuation. Now, where the land borders along a stream, did you presume he had the right to use the water in that stream? A. Yes, I should think so.

"Q. You presumed that on the westerly side, you testified that the land was good for pasturage and stock purposes? A. In part.

"Q. Yes, where is a man to get his water there for pasturage and stock purposes? A. Get it on the land.

"Q. Get it on the land. Are there any springs on that land?

"A. There are in places. I am not prepared to give you the location of all of them.

"Q. Have you any idea how many springs there are there?

"A. No, I have not.

"Q. Have you any idea as to their location? A. No, sir.

"Q. But you are taking it for granted that there are some there? A. Yes."

I shall take this topic up from the point of view of water right valuation later. I want now, however, to make this observation, that if counsel had desired to place a value upon these reservoirs and adjacent watersheds as a water system property, that, too, could have been done by complainant's engineers, and in such case the real estate values could have had little or no effect on the results. Counsel's idea seems to be that you could populate the watershed lands riparian to the peninsula lakes with Hillsborough subdivisions and still have a value left for those reservoirs as a part of a domestic water supply. There hasn't been anything more inconsistent or ridiculous propounded in this case.

I postpone the discussion of the right of way appraisals until the time comes to take up that general topic. I will say, in passing, that in making up our rating bases we have not relied on Mr. Smith's valuations of certain rights of way, but have accepted Mr. McDonald's figures for those, believing he was better qualified to handle that subject.

MR. GREENE—Mr. Searls, I am not quite clear in my own mind as to what your notion would be if, for instance, the company owned simply the peninsula reservoirs, and we will say without any watershed, and it appeared in the record that there was an offer of, let us say, \$1,400 an acre from another water company, would that be a legitimate basis for the value of that property in rate-fixing, or would it not, on your theory? I mean, would the fact that the value of the property lies in the very purpose for which it is actually being used entitle the Court, in fixing a basis for rate-fixing, to take that fact into consideration, or do you think a valuation is forced on the basis of surrounding real estate, as per the Minnesota Rate case?

MR. SEARLS—I recognize the doctrine of *Boom Co. v. Patterson* and *Spring Valley v. Drinkhouse* and all the cases which have said that where land has special adaptability to a certain purpose that must be considered in arriving at the market value, but I say in giving that consideration you must give the consideration independently of the real estate value of the property, that you cannot add it to the real estate value unless, as a matter of fact, the value for water supply purposes is so great as to make it greater than the real estate value.

MR. GREENE—Do you understand that Mr. Grunsky has added anything to reach his \$1,400? Is not that the value of the reservoir properties?

MR. SEARLS—No, but I think that Mr. Hazen and Mr. Metcalf, in making up their rating bases, took Mr. Baldwin's and Mr. Hoag's appraisals, which, as I contend, must have reflected the real estate value of those lakes into the watershed valuations, and added to them Mr. Grunsky's valuation of reservoirs based on their water-system use there is a distinct duplication there. I do not think that is cleared up by the unequivocal statements of Mr. Baldwin and Mr. Hoag that they did not consider the lakes, because I don't think that statement has any sense.

MR. GREENE—Of course, I know you don't agree with his totals, but if you eliminate the watershed lands entirely and assume that the company did not own them, you don't quarrel with the method of valuation pursued by Mr. Grunsky, do you?

MR. SEARLS—I don't know just what you mean by the word "method."

MR. GREENE—I mean you have not any criticism to make of the valuation of that land for its most valuable use.

MR. SEARLS—No.

MR. GREENE—And that is what I wanted to get clear.

MR. SEARLS—The only criticism I have to make is that the water-supply use may not be the most valuable use. I don't know whether I make that clear or not. What we are trying to get is market value, and market value is determined by the price which a willing buyer would pay a willing seller, and the United States Supreme Court has said in the Sage case, at least, that the value to the public utility itself is not an element of value which can be considered in making that up. We have to consider whether the fact that these lands were available for watershed purposes and water purposes is reflected into their general market value; that is, the value which Mr. Jones would pay Mr. Smith if Mr. Smith owned one of the parcels and Mr. Smith was willing to sell it and Mr. Jones was willing to buy it—not the value which he would have to pay in condemnation,—not the value which the Spring Valley might be willing to pay Mr. Smith, because that parcel of Mr. Smith's would complete its ownership of lands necessary for a reservoir, or would help to complete it. I don't know whether I have made that thought clear to your Honor or not; I have tried very hard to express it.

THE MASTER—But you do not think the entire value of the land used for reservoirs is contained in the increment which the scenic beauty of the lakes may add to the surrounding watershed? I understand that you think that is part of it, that when you consider the lake there the watershed is that much more valuable, but as I understand it you spoke of Mr. Dillman adding something else.

MR. SEARLS—Mr. Dillman valued these lands as we claim from the engineer's point of view in an endeavor to get at their reservoir value, and he found that that was higher than the reflected value which Mr. Smith had ascertained from

his valuation, and he added the difference, so as to give a fair market value to the reservoir properties in that way.

THE MASTER—Suppose we make some assumptions, so that I will get your point clear: Let us suppose there are a thousand acres of watershed land, and that Mr. Smith valued them at an average price of \$50 an acre, which took into consideration the fact that the desirability of those lands was enhanced to a certain degree by the presence of the lakes, and so we will allow \$50,000 for that; Mr. Dillman, according to my recollection, took the average of the values of the watershed and added a percentage, we will say a quarter—

MR. SEARLS—That was not the method I had in mind, I was thinking more of his deductions from the original cost of the reservoir lands themselves. I am not sure that his second method—

THE MASTER—According to your contention, how am I to value that property? Suppose there are 100 acres of reservoir and 1000 acres of watershed, and supposing Mr. Smith values the 1000 acres at \$50 an acre, that would make \$50,000. Is that all that I am to include in my rating base, or am I to throw in 100 acres of reservoir at some other figure?

MR. SEARLS—I should say that you should determine the value of the 100 acres of reservoir from one of the engineering valuations. For instance, if you accept Mr. Dillman's valuation, you would take the average price originally paid for reservoir lands and enhance it by a rate which you find from the testimony would represent the fair appreciation of real estate between the date of the purchase and the date of the valuation. After reaching that figure, you would then take into consideration by some such method as Mr. Smith used the probable enhancement of the value of the watershed lands resulting from the presence of those lakes. If you found that was less than the reservoir value determined as I have first said, you would add that increment to the value of the water-

shed lands as finally determined, and in that way you would have the market value of the reservoirs reflected into your total valuation.

THE MASTER—Does not that identify the value due to the availability of the reservoirs with the scenic values of the lakes?

MR. SEARLS—Only in this way: We are seeking to determine the market value of reservoir lands. The market value of the reservoir lands includes the availability of those lands for water supply purposes and their availability for real estate purposes. From a real estate point of view, the only way that value can be ascertained is by determining what it reflects into adjacent land. From a water supply point of view the value can be determined by some such method as Mr. Dillman or Mr. Grunsky used. By taking the two and determining the highest figure which is obtained in that way, it seems to me you have covered the subject.

MR. GREENE—I have another question I would like to put to you, Mr. Searls: If the real estate appraisers had, instead of following the course which you have suggested, one appraiser going on the entire property and looking at it from a point of view of disposing of the entire property at the most advantageous terms possible, and if he should state as to the watershed land, If I dispose of that without any assurance that the lakes will be there, if I sell it to persons who cannot be assured that the lakes will be continued there indefinitely, it will be worth so much in any event; and the reservoir lands, if I have any assurance that they will be attached to it, my total valuation is so much, the sum of those two; now, is there any inconsistency in that, in your opinion?

MR. SEARLS—I think there is. If you have no assurance that the lakes are going to be there, I don't think you can place a dependable valuation on the watershed lands.

MR. GREENE—Don't you do that all the time? Don't you always buy lands subject to the possibility that the scenic con-

ditions may change, that a factory may go up, that some incident may happen that may either increase or destroy your value?

MR. SEARLS—I think the contingency is so remote that it does not enter into a transaction as a rule and does not affect the price.

MR. GREENE—I just wanted to suggest that matter to you, because, as I understand the rule, in any condemnation proceeding, the appraiser has a right to divide his property; for instance, a corner lot, 100 by 100, it is the practice of an intelligent appraiser to decide what is the best use to be made of this corner; what can be done with the next 100 feet up, and so on. Now, the aggregate of those values is his total value. There is no inconsistency, as I understand it, in that method of procedure. That is virtually what our people have done here.

MR. SEARLS—Yes, but the real estate appraiser does not consider he could put up a very select apartment house on one portion of his corner lot and a tannery next door to it. The two conceptions are absolutely inconsistent. He could not give a value for both purposes. Your people are trying to give a value for watershed lands, for residential purposes, and a value to the reservoir lands for water-supply purposes, and the two are absolutely inconsistent.

MR. GREENE—You don't think they are inconsistent as to Merced, do you?

MR. SEARLS—So far as the margin surrounding the lake is concerned, I do.

THE MASTER—I think the trouble is, with these abstract and speculative ideas, that we are trying to assume the impossible, and that the results come about by reason of our looking at the thing as if we were going to sell this property out into scattered holdings in the community, instead of the opposite, that is, bringing it back in. I think it has not been made perfectly clear in the decisions, but this discussion seems to me to point to the probability that what we are really trying to get at is what this watershed and what this reservoir land

would be worth in the hands of another owner, or many owners than the Spring Valley Water Company, dealing with the Spring Valley Water Company in purchase proceedings, or in condemnation. When you think of it in that light, you do not have the inconsistency of residence uses and water system uses being both together. Of course, that is an absurdity. Nobody expects to have fine residences down there in that watershed. The only reason we are talking about it is because the Minnesota Rate Case seems to tell us to do so.

MR. SEARLS—I don't object to the conception of fine residences on the watershed, your Honor, if they only be consistent and not try to value the water supply as a source of domestic use at the same time. If they will take the reservoir lands and value them as an irrigation storage, or something of that sort, that would not be absolutely inconsistent, they might go ahead with it. You cannot think of the thing as a whole, dividing it into two parts, having absolutely inconsistent uses. That is what is troubling me.

As I have before stated, there is practically no dispute as to the utility of the lands in San Mateo County, the city conceding the utility of practically all those that the Spring Valley Company did not exclude. An exception may be noted as to the portions of the lands lying in the San Mateo Creek watershed, below the lower Crystal Springs dam—that is a portion of the Howard tract there.

w. Miscellaneous Peninsula Lands.

We have given to those lands a right-of-way and a riparian value, and find no reason for including any additional real estate value, as no part of them drain into the lakes or serve any useful water-supply purposes in addition to the right-of-way and the water right protection.

Personally, I believe that the Silva tract has been overvalued for water-supply purposes. Mr. Dillman states (10833-4) that very probably a very large portion of both the Silva tract and the Millbrae Reservoir tract should have been deducted, but he has allowed them both as no value for right-of-way purposes was placed upon them.

Mr. Metcalf also cites (10573) that it would be fair to charge off part of the value of this tract to other than water-supply uses. How much should be so charged is probably more or less arbitrary, and I shall leave that also to your Honor's discretion without further argument.

THE MASTER—How much is involved in the Silva tract?

MR. SEARLS—Something over \$100,000, I believe.

MR. GREENE—Yes, that is my recollection of the amount.

THE MASTER—Is that the one that the pipe line goes through?

MR. GREENE—Yes, your Honor.

THE MASTER—That is, north of the Mills' property?

MR. McCUTCHEN—North of the Mills property, your Honor, a narrow strip going up over the top of the hill.

MR. SEARLS—With regard to the Ravenswood lands, we have allowed only a right-of-way value; Mr. Hazen also approved that method, except that he allows a wider strip than we have taken. In the Ravenswood Wells, we did include the Frisbie tract in addition to the rights of way, that being the tract on which the company's pumping station is situated.

THE MASTER—Both sides are pretty well agreed on that.

MR. GREENE—There is not much difference. Mr. Hazen took 150 feet; he said it was cheap land; he said he always bought 150 feet when he went into an operation of that sort.

MR. SEARLS—This ends my discussion on Peninsular lands.

5. Alameda County Lands.

These lands were valued for the plaintiff by Messrs. Gale, Schween, Mortimer, Clayton, Parks, Hayes, Lassere and Professor Wickson; and for the defendants the witnesses were Callaghan, Parsons, Means, Fallon, Rasmussen, Rogge, Connolly, and Hatch. I shall take up first the testimony of the complainant's witnesses.

a. Complainant's Witnesses.

Counsel has invited me to comment on the testimony of Mr. C. A. Gale, and the other witnesses who testified in complainant's behalf, as to the value of Alameda property.

It is fortunate indeed for complainant that we did not attempt to pile up any such record on cross-examination of these witnesses as counsel did in the cross-examination of our real estate witnesses. For this case would still be in its incipency, and it would take a week or two to argue this branch of the evidence alone.

Inasmuch, however, as all of these witnesses have been held up by counsel as being the only competent and fair-minded men who testified in the case, it may be well to make a few passing comments as to the testimony of each of them, so that your Honor may have these points in mind when you come to examine the record.

Mr. Callaghan and Mr. Parsons have been vigorously accused by counsel of being strictly partisan witnesses. It is not clear to me just what he means by this. If he means by that statement that these witnesses started out with the purpose in mind of condemning and placing unfair values on the company's property, I say to your Honor that there is not one scintilla of evidence in all of the long record of their testimony which goes to substantiate such a contention. If he means by "partisan" that after Mr. Callaghan and Mr. Parsons had reached their respective values upon the Spring Valley properties that they stood by their guns under the rigorous cross-examination to which they were subjected, and refused to make concessions which counsel thinks they ought to have made, but which the witnesses apparently thought they were under no necessity of making, I frankly concede that each of them did his best to sustain his valuation.

And I am going to call your Honor's attention, in commenting upon the evidence of the Spring Valley witnesses, that they did exactly the same thing. I am going to call your Honor's attention, also, to the fact that, in the case of the Spring Valley witnesses, and not in the case of the city's witnesses, there was every incentive for an excessive valuation to be made in the first instance. I said something at the beginning of this argument about the psychology of the situation, and the

tender leniency with which we are wont to view the estimates of an optimist, as compared with those of a conservative. And if there ever was a collection of unadulterated, dyed-in-the-wool, highly-trained optimists, that collection presented the evidence on the complainant's side of this case as to real estate valuations.

Every single witness who testified for the company as to the value of these Alameda properties was directly, or indirectly interested in sustaining the company's side in this litigation.

b. Gale's Testimony.

Mr. Gale, real estate agent, purchaser of Pleasanton lands, sometime lawyer, has been drawing his commissions from the Spring Valley Water Company for many years in the purchase of the Pleasanton properties. Is he interested in keeping the favor of the Spring Valley Water Company? Do his commissions for the future purchases in the Livermore Valley, which Mr. Eastman says the company may some day make, depend upon the approval of the officers of the Spring Valley Water Company? Would their gratitude be helpful to him in his business? Did he have figures to sustain, in his valuation, which would justify the purchase prices which he actually paid the year before the date of this valuation for many of these Pleasanton lands? The record of Mr. Gale's testimony will answer these questions for your Honor.

Bear in mind that I do not accuse Mr. Gale of "mental dishonesty" or "mental incompetency" or the other crimes that have been charged up to all of our witnesses. But I do say this, and I say it most emphatically, that Mr. Gale was in no better position to place a fair, judicial appraisal on these properties than counsel would be himself. And I say that with due respect to counsel's very intimate knowledge of agricultural land values, and counsel's probable ability to stand cross-examination on what he knows.

Would your Honor accept, without modification, counsel's statement as to the value of the Spring Valley real estate in Alameda County? Or would you accept my statement as to

the value of that real estate, assuming, for the moment, that I was otherwise qualified to give it? I say that Mr. Gale was in virtually the same position that counsel would be. To paraphrase counsel's own expression, he is "a lawyer among farmers, and a farmer among lawyers."

Counsel has accused both Mr. Callaghan and Mr. Parsons of calling attention, in their direct examination, to some of the poor features of the land which they were valuing, and insufficient attention to its good features. Let me read your Honor a few excerpts from Mr. Gale's direct examination with respect to some of these parcels, and see whether or not it bears out my suggestion that Mr. Gale's appraisal was not altogether non-partisan.

Let us take his comments on appraisal r-268. Your Honor will recall that appraisal as the tract on the west side of Oak Ridge, having the big slide on it, covered for the most with brush.

Mr. Gale says (680) 268-r, it is,

"A. 320 acres in section 34; it lies south of the Oak Ridge road on top of the north slope or Arroyo Honda Creek; the property is all rolling, it has some good, flat grazing land on it, but portions of it wooded. Upon this piece of property, containing 320 acres, I placed a valuation of \$10 per acre, or \$3200."

The bulk of the land you could not give away.

v-268: Your Honor will recall that tract as the almost perpendicular north side of La Honda Creek, thoroughly covered with black brush. The witness describes it (680), as follows:

"A. The smaller portion, 160 acres, the La Honda Creek runs through it, the slopes directly into La Honda are rather wooded and steep."

"Rather wooded" is good—a deer would turn at bay before he would go through that brush.

"A. * * * Upon this piece of property, containing 160 acres, I placed a valuation of \$6 per acre, or a total valuation

of \$960." I don't quarrel with Mr. Gale's figures on this land, I am simply referring to his description.

And again: 268-w, which is of the same character as 268-v, he describes on the same page (680), as follows:

"A. This property slopes into La Honda; it is known as the Russel property. It is steep; some grazing on it, bushy. Upon this piece of property, containing 160 acres, I have placed a valuation of \$5 per acre, making a total valuation of \$800."

There is not a wide difference between Mr. Gale and our own witnesses on the prices of these properties which I have just described. There couldn't be. But his language is, to say the least, optimistic.

Again, p.-268, which is of the same general character (679):

"A. There are about 300 acres of this section which slope into Arroyo Honda; that is steep and wooded. The balance of it is practically all good, open grazing country, a portion of it is a little bit rough. On this piece of property, containing 480 acres, I placed a valuation of \$8 per acre —no, my list must be wrong there, because I placed a valuation on those 480 acres of \$10 per acre, or \$4800 for the entire piece."

And a little further (679):

"A. * * * The other piece of property, known as section 4, the portion sloping into Arroyo Honda, is very steep and wooded. There are about 50 acres in the north-west corner of the property. And about 200 other acres that is open grazing land, and with fair feed upon the property. On this piece of property, containing 643.80 acres, I have placed a valuation of \$10 per acre, or a total of \$6438."

Now, the valuation Mr. Gale placed on these pieces doesn't make much difference, because he and Mr. Callaghan are very close together on these sections. But his descriptions are just as far from conveying to your Honor a correct idea of the topography of that land as anything counsel has called attention

to from our witnesses on other parcels. If he could overlook the flaws in these parcels what would he do in better pieces. In his description of the Arroyo Valle grazing lands this witness follows practically the same line of optimistic description. I am not going to take the time to read them here.

Also take Mr. Gale's description of the Stone piece, H-239 found on page 635 of the record:

"A. That is the Charles Stone piece. The entire property is of rolling hills; some of it is steep;—"

Ninety per cent. of it is steep, I suppose, from looking at it.

"A. (Continuing) * * * Some of it is wooded, small portions of it. It is practically all grazing land. A portion of it could be farmed. E. C. Apperson has used it for grazing purposes for a good many years. I appraised that piece of property at \$60 an acre, for 1172.16, making a total of \$70,329.60."

It appears that the company is today getting \$600 a year rental from this Stone piece.

The taxes on this piece, as shown by Exhibit 235, are \$826. In other words, the piece nets the company a loss of \$200 a year; and that is the property which the witness says is worth \$70,000. Talk about optimists!

I could go through this witness' testimony and call your Honor's attention to other tracts that he has described in the most favorable terms, ignoring their poorer features. But I think the foregoing is sufficient to show that complainant's witnesses have not lost any opportunities to back up their valuations.

Again, if your Honor will examine Mr. Gale's appraisals—he says that he knew the prices which were paid for the Pleasanton lands, or at least for many of them. But he did not consider the purchase price at all on his appraisal, although they were bought in 1911. We are therefore not to rely upon these actual purchases by the Spring Valley Water Company as furnishing any basis for the witness' appraisal of these lands. He doesn't claim to know much of anything about their productive ability. He speaks, in

places, about the soil and crops that they have produced, but he doesn't qualify as having had any more than hearsay information to support his statements. This is the character of information which counsel so vigorously criticises in Mr. Callaghan.

What, then, is the basis upon which counsel relies for the remarkable degree of importance which he says is to be attached to Mr. Gale's valuation? Is it his knowledge of prices at which similar lands have been sold? If so, it does not appear from the record.

Mr. Gale qualifies as having sold a considerable acreage of land in the Livermore Valley and on the adjacent hills. But he doesn't tell us whether it was comparable to the Pleasanton lands. And he does not give us the prices at which those sales were made. They are not anywhere in the record. It is true that, when we made the trip over the properties, Mr. Gale did call our attention to some tracts which he said were comparable with some other tracts,—I have forgotten which ones—and at that time stated the prices which had been obtained but, for some reason best known to himself, counsel has failed to include these prices in the record, and I am unable to see how your Honor can use this information, or how you can find any check whatever upon the reasonableness of Mr. Gale's appraisal.

One of the most interesting features of Mr. Gale's testimony though, which goes to show the excessiveness of his Pleasanton appraisals, is found on page 751 of the record, where your Honor had asked him why he didn't take into consideration the prices at which the Spring Valley had purchased these lands a year or two before. He says (751):

"A. The reason I did not take into consideration the price paid for the Spring Valley Water Company for the lands purchased by them is this: The Spring Valley Water Company wanted these lands for a certain purpose; they set out to buy them—if the man who was selling did not want to sell he would demand a greater price than the actual value and the Spring Valley would pay it because they wanted those lands for some purpose or other possibly worth to the Spring Valley Water Company what they purchased

them for; people who owned lands in the vicinity of the water works of the Spring Valley Company, the farmers through that country, it is a matter of general knowledge with them that lands of that character are worth more money and they could obtain more money for them for those purposes from a company like the Spring Valley Water Company than they could for general farming or agricultural purposes."

And then your Honor asked him (751-2):

"Q. So the purchase prices in question were, I assume, generally higher than the valuations you have placed upon the lands, except in the case of the Chabot piece, which you said it was a bargain?

"A. No, I will not say they were generally higher than the value I placed upon them. The Hewlitt place—I believe they received \$300 an acre for that. The Blacow piece—we paid Blacow for the entire 50 acres the sum of \$25,000, just what it was appraised for, and in addition to that granted Blacow, if I remember correctly, a lease for a year or for two years; for the first year it was for a consideration of one dollar, and for the next year it was for a very nominal consideration. The Schween property, I am inclined to think that I appraised that for a little more as a whole than what the Spring Valley Water Company paid for it. The Freitas property, if I remember that correctly, that will average just about what the Spring Valley Water Company paid for it."

And I wish your Honor would bear that in mind in view of the subsequent testimony of Mr. Schween, which I will read to you.

And then he goes on and gives the purchase price for various other tracts, the total original cost of Pleasanton ranch lands, adding up to a little less than the figure that he places on them. But it must be borne in mind that Mr. Gale's figure does not include improvements, and the purchase price did. So that, in order to make the comparison exact, you would have to subtract the appraisal of the ranch house and canals from the purchase price, or add it to Mr. Gale's figure, and his figure will then be found considerably in excess of the price that the

company actually paid for the land two years before and which Mr. Gale himself says was, in some instances, excessive.

This is the witness to whose testimony Mr. McCutchen wants your Honor to give unlimited credence. He hasn't qualified as knowing anything about the products of this land, or the returns from it, although it must be obvious that such knowledge would be a very material factor in any qualified appraisal. He has qualified as having made a large number of realty sales in the general vicinity. But he hasn't furnished us with any information in regard to those sales which we might use as a check upon the reasonableness of his valuation.

Mr. Callaghan, on the other hand, did both these things. He not only considered what the land would produce, or could be made to produce, but he absolutely tied his valuations to the neighboring sales, the record of which, and the record prices of which, are in evidence, so that your Honor may intelligently pass upon the reasonableness of the figures which he used. I should draw a distinction here between an appraiser of property such as the company owns in Alameda County and property such as it owns in San Mateo County; here in Alameda County we have farm lands, we have grazing lands capable of being put to agricultural uses and deriving a revenue which may be considered in making an appraisal; and we also have the fact that the market price in general of lands of that type, as determined by comparative sales is a very much more reliable guide than the prices of comparative sales in districts where country estates are the prevailing subdivisions.

Now, with respect to the lands, other than the Pleasanton lands: Mr. Gale hasn't qualified at all. He isn't a stock man; he isn't a farmer; he isn't a fruit man. He never made any sales in the vicinity of Calaveras or Arroyo Valle, or San Antonio. He hasn't furnished us with any sales as a check to the reasonableness of his valuation. Where are the marvelous qualifications, of which counsel so eloquently spoke, which enable Mr. Gale to place an unassailable valuation on these other properties situated far from his native haunts, and which he has so

glibly described and valued? Did his familiarity with those lands compare with Mr. Callaghan's? I do not need to answer that question.

If your Honor will hark back to the time when we made the trip over these properties, and test your recollection as to the relative familiarity of Mr. Callaghan and Mr. Gale, with their location and characteristics, there isn't any question but that your Honor will be satisfied that Mr. Callaghan knew infinitely more about the property he was valuing, and the subdivisional lines, and the character of the ground.

I presume it was considerations of this sort which led counsel to reinforce Mr. Gale, or at least try to reinforce, at certain points.

c. Schween's Testimony.

They called in Mr. Schween to help him value the Pleasanton lands. Here was another absolutely unbiased witness, with nothing to disqualify him from making an unprejudiced appraisal. Mr. Schween goes Mr. Gale one better. He isn't merely an agent for the Spring Valley Water Company,—he is an employe! (771) He has charge of the Agricultural Department under Mr. Roeding. His duties are to look after the tenants, collect the rents, and lease property to the different parties coming in who wish to rent property. He also has to look after the squirrels and such things and here of course is really a very valuable aid to knowledge of the land. It isn't possible that Mr. Schween had any personal interest in enhancing the value of the Spring Valley property. Of course his position did not depend upon the favor of the Spring Valley officials and he wouldn't be tempted to please them with a high valuation! Mr. Schween, however, is very cautious in expressing his opinions. He prefixed most of them by the clause "truthfully speaking," so that we will know he is telling the truth (771). The idea being, I suppose, that the witness would have us know that he would really prefer to give another answer, but considerations of the truth alone have impelled him to give the one which he did give.

Along this line of truthfulness an interesting little incident arose, during the trial, to disturb Mr. Schween's equanimity. It seems that, sometime prior to the date at which Mr. Schween made his valuation, Mr. McDonald and Mr. Moore, of the Interstate Commerce Commission Appraisal Department, were talking with Mr. Schween about the value of lands near Pleasanton for the purpose of placing a value on the Western Pacific right-of-way. And at that time they asked Mr. Schween as to the value of the land which was formerly owned by him and he gave them a figure. And when it came to cross-examination Mr. Steinhart asked him about the conversation (867) and he remembered that these gentlemen had called upon and asked him about the value of this right-of-way, and he recollected that they had asked him about the value, starting at Niles and running as far as Tracy—and there his recollection stopped. He was asked if they didn't ask him about the value of the land around Pleasanton through which the right-of-way ran, including his own property. But he could not remember this, and said, in reply to Mr. Steinhart's question (867-8):

"Q. Did not they ask you as to the value of that land formerly owned by you, and didn't you give them a valuation?

"A. I am not positive as to that, but I did tell them, I remember that distinctly, that the lands above us were worth much less per acre than our lands, that we owned at the time—I told the gentleman that.

"Q. You told them that the lands above you were worth considerably less than the land formerly owned by you?

"A. That is correct.

"Q. Now, didn't you give them a valuation on the lands formerly owned by you?

"A. I am almost positive I did not.

"Q. You are almost positive you did not?

"A. Yes; in fact, I am positive.

"Q. Now, what value did you give them on the lands above you?

"MR. McCUTCHEN—Which lands do you mean?

"A. The lands east of the Spring Valley—the lands now owned by the Spring Valley; but I am not positive whether

I placed a value on the lands, but I did say that the lands were worth considerably less, which is a fact.

"MR. STEINHART—Q. But now I am asking you what figure you placed on there; you know you placed a figure on that, Mr. Schween, because they had no object in coming to you unless they could get a figure."

Mr. McCutchen intervened again (868):

"MR. McCUTCHEN—Now, if your Honor please, I submit that that is not fair to the witness, to tell him that he placed a figure upon it.

"A. Mr. Steinhart, really, I am positive I placed no figure on that land; I am positive of that.

"MR. STEINHART—Q. You are positive you placed no figure on it?

"A. I am positive.

"Q. In other words, these gentlemen came to you and simply discussed with you as to whether or not that land was worth more or less than your land and nothing else?

"A. I am positive that we did not discuss the land other than the right-of-way land; that is all.

"Q. Didn't they ask you the value of neighboring lands along the right-of-way?

"A. I hardly think they did; they may have asked me, but I do not think I gave them the figure, because how could I?

"Q. Why not?

"A. Outside of the Spring Valley land—

"Q. (Intg.) No, I am talking about the Spring Valley lands along the right-of-way.

"A. I am positive I gave them no figure whatever."

Fortunately, however, we didn't have to rely upon Mr. Schween's recollection of that conversation. Mr. McDonald, who was also present at the time the conversation took place, was a witness in this case, and Mr. McDonald very distinctly remembers what Mr. Schween said. He describes a conversation, page 1697 of the record. After laying the foundation, and referring to Parcel 283, listed as 101.06 acres, Mr. Steinhart asked Mr. McDonald:

"Q. In that conversation was Mr. Schween asked to give the market value of that land?

"A. He was.

"Q. And what value did he give?

"A. \$300 per acre.

"Q. \$300 per acre?

"A. Yes.

"Q. Was there any conversation as to what Spring Valley paid him for that land?

"A. Yes, there was.

"Q. What did he say?

"A. He said Spring Valley paid him \$450 per acre.

"Q. Was there anything said about the fact as to whether Spring Valley paid more or less than the land was worth to him?

"A. They paid more than it was worth for farming purposes, and consequently more than it was worth to him.

"Q. Did he say anything as to what the Western Pacific paid him for the land?

"A. Yes, he said they paid him \$350 an acre."

Now, of course, the whole story becomes plain. The reason also becomes plain why Mr. Schween did not want to admit the conversation in question. He had held up his present employers, the Spring Valley Water Company, for \$150 an acre more than he believed the land to be worth, and \$100 an acre more than the price at which he had sold a right of way through the land to the Western Pacific Railway Company. And when he took the stand in behalf of the Spring Valley Water Company he couldn't tell the truth about that conversation without stultifying his valuation, and without giving away the profits he made on the transaction.

Now, Mr. McCutchen has said that if a witness is found to be dishonest in one thing he may be regarded with suspicion in others. And I shall leave your Honor to apply Mr. McCutchen's own rule to the testimony of this witness as you may see fit. "To be truthful," as Mr. Schween says, Mr. Schween appears to have forgotten the truth on this occasion.

Mr. Schween was called into the case as a farmer witness to

value these lands at Pleasanton, and the Arroyo Valle, on the basis of what they would produce. On cross-examination (861), Mr. Steinhart called his attention to a bulletin of the University of California, setting forth the extraordinary yields from hay and grain lands. Mr. Schween agreed with the statements in the circular that a possible but extraordinary yield of oats would be 40 sacks an acre. And Mr. Schween had just testified (860) that the yield of the Schween ranch in 1910 was 44 bags of oats to the acre, and he said that that is the usual crop, that he had five running crops like that, and that that was the usual crop throughout the Pleasanton Valley to a great extent.

Now, it may be that the Pleasanton lands will yield year in, year out, four more sacks to the acre than the bulletin which Mr. Steinhart read gives as the possible but extraordinary yield of oats, but I very seriously doubt it. And then Mr. Schween (862) evidently realizes that he has been too optimistic about this yield of oats, so he changes the subject to barley and says:

"A. * * * I know on one particular piece of 100 acres, what you call the brickyard piece, they had 165 bags of barley to the acre average; that was an average for the five years, or 31 sacks per acre a year.

"MR. STEINHART—Q. 31 sacks per acre per year?

"A. Yes.

"Q. That is a little different than 44 sacks per acre.

"A. 44 sacks of oats.

"Q. Isn't it a fact, Mr. Schween, that barley runs more sacks to the acre than oats, and therefore that 31 sacks of barley to the acre is not at all extraordinary?

"A. It is not at all times."

And Mr. Steinhart cites, on the next page, from the pamphlet in question, the "Yield not infrequently obtained under favorable conditions" would be 34 sacks of barley.

So that Mr. Schween's story of 31 sacks indicates that his land yielded less than what might be expected under favorable conditions.

And again, with respect to wheat: Mr. Schween had testified that he got 28 bags of wheat to the acre, and Mr. Steinhart calls

attention to the fact that the University publication gives a possible but extraordinary yield as 25 sacks to the acre. And then Mr. Schween becomes doubtful (on page 866), and Mr. Steinhart asks the question:

"Q. Did it always run this extraordinary crop of 28 bags to the acre?

"A. Well, I hardly think so. I know that on several occasions we had over 20 bags; how much I could not say."

Now, all this means just one of two things: Mr. Schween either did not know what the lands had produced, and was making a guess, and the guess so high that it could not be substantiated, even by the official records, or else Mr. Schween's records were increased for the occasion. And this is one of those impeccable and unimpeachable witnesses that counsel has been describing who have given testimony in behalf of complainant. If he had firmly in his mind the actual yield of these lands, he would not have answered Mr. Steinhart's questions the way he did.

d. Mortimer's Testimony.

But still counsel was not satisfied with all that Mr. Gale and Mr. Schween had told about Pleasanton. He went over to Berkeley and got Mr. Mortimer, who was a Berkeley real estate dealer. He came in here and told us the Pleasanton lands were sub-irrigated, and adaptable to the production of alfalfa. And after a long examination and cross-examination, in which he dwells upon the value of these lands for alfalfa production, Mr. Steinhart asks, on cross-examination (906):

"Q. Are you an agriculturist?

"A. In what way—I am a farmer.

"Q. But you have never grown any alfalfa?

"A. Not any alfalfa, no."

I submit that this witness had not qualified himself in any respect to appraise these Pleasanton lands. His nearest sales had been down on the Niles cone, where he had sold some sub-irrigated alfalfa lands. Without having qualified as an expert

alfalfa grower he came up here to Pleasanton, looked over the property—he doesn't tell us how he looked it over and what examination he made to determine whether or not it is sub-irrigated—and he said: "Yes, it is sub-irrigated land, and it is worth \$400 an acre," because he paid Mrs. Beard \$400 an acre down on the Niles cone.

It appears (905) that he also was one of the agents who bought the land for the Spring Valley Company. And, outside of this single sale that he made to the Spring Valley Water Co., he testifies that he hasn't even sold any alfalfa land. And I ask your Honor of what value is the testimony of this so-called expert in this case?

e. Clayton's Testimony.

Finally, we come to the real poet of this proceeding, the only one we have had here, Mr. W. S. Clayton. I don't know whether Mr. Clayton is president of the Chamber of Commerce of San Jose, chairman of the Rotary Committee, leader of the San Jose Boosters' Club, president of the Santa Clara Valley Prune Association, and chief of the Publicity Bureau. But if he isn't, then San Jose and the Santa Clara Valley have overlooked the best bet they ever had. He exudes optimism and hopefulness from every pore. I am going to read your Honor some of the lyrics which appear in his testimony, just to alleviate the tediousness of this proceeding.

But first I want to call your Honor's attention to the possible inspiration for these poetical descriptions. Mr. Clayton, like all the other witnesses, is heart and soul with the complainant in this cause. He, too, has acted for the company as agent, adviser and mentor in the purchase of the Calaveras lands. And on his shoulders rested the burden of justifying the prices which he paid, or admitting to his employers that he had paid too much. He chooses the former horn of the dilemma, and he does it in good measure. I wish I could give to this beautiful little description the exact tone of voice with which the witness delivered it. I am reading from page 911:

"A. Calaveras is a perfect little valley, surrounded by strong mountains on each side, and a very narrow outlet, almost in solid rock. * * * The accumulation of soil in the level portions of the valley during the past ages has been from hills that had very fine soil; the body of the valley is very rich. There is water-bearing stratas—springs—coming out on each side of the valley as far as those lands go in both directions that simply make it a paradise for cattle, for agricultural purposes, and brings the valley full of moisture. It is something that is almost unparalleled in an agricultural situation. There is hardly any square mile but has its springs accessible to cattle. There are many streams going through it that are running."

And then Mr. McCutchen rudely interrupts and asks him about his experience as a farmer, and he states that he has set out orchards on speculation. And then he comes back, page 912, and continues his description of the Garden of Eden:

"A. The floor of the valley is wonderfully productive; it produces in dry years, and it is not killed in wet years. It should have been a prune orchard, or any other high productive plantation. The fact that it has been in the hands of cattlemen, who have confined the production to hay, has simply been their loss. The productivity of that valley for sugar beets, for potatoes, for all the products that Portuguese raise, and for fruit, is there; it is easily proven. The fact that it has not been put to those superior or more profitable crops has simply been a loss of that much money to the world. I think it is ideally situated for walnuts—in certain portions of it; perhaps the water comes too near the surface in certain portions for fruit trees that require a greater rooting depth; —"

This must be the portion where Mr. McCutchen describes the wonderful adaptability for prune orchards, because those are the only portions where the water comes near the surface—

"but there are portions of it there which I am quite positive would be par excellence for walnuts."

Then Mr. Clayton goes on and describes the valley and discovers that it is available for almost any agricultural purpose that could be suggested—prune land, vegetables, alfalfa land, fruit, and cattle ranches. Mr. Clayton doesn't qualify anywhere as knowing anything about cattle ranches or dairy lands. But he says Calaveras Valley is excellently adapted as a cattle ranch. He compares this mountain valley with the Santa Clara Valley, with all its proven development and accompanying values. And he compares it with the best of the fruit land in the Santa Clara Valley warm belts. Then he goes up to the steep, brushy lands on Oak Ridge, and on Poverty Ridge, and places values from \$10 to \$15 per acre on that class of land.

Take r-268, the parcel with the big slide; and q-268, which immediately adjoins it and runs down into the Honda. He says of the latter (954):

"Q. That is on the Arroyo Honda, just above the point where the water level of the dam will bring the water to, and that consists of a hillside there, a good deal of timber on it; it is a south hillside. I appraised that at \$12 an acre."

According to my recollection, if you camped on that ground you would have to brace yourself against a tree to keep from rolling into the creek.

And then of r-268 (954):

"A. That faces the south, and the cattle prefer the grass that is on that 320, in fact, both of them, although confining my remarks to the 320 acres—section 28, north half of 28, I appraised that at \$12 per acre. It has got some rock on it."

Some rock! Has your Honor a picture of the huge slide on that tract? It is grazing land almost exclusively. And speaking of the other half section of r-268 he says (955):

"A. That has also a southern exposure, good grass; top of the hill there—not exactly the top of the hill, but it has a good south exposure, fairly open, although the lower portions of it run into the heads of the gulches. I appraised that at \$15 per acre."

Of the Maggie King place he says, sadly, on direct examination, (949) "I could not value that at *over* \$70 per acre."

And of the quarter section on page 17 he says (955):

"A. Yes, right on the line dividing the counties; there is a portion of that runs down to the road, quite steep, and then some flats on the northern portion, some hay standing there; I appraised that at \$10 an acre."

I submit to your Honor that there was nothing in Mr. Callaghan's or Mr. Parsons' description of the poor qualities of some of the better pieces in the Calaveras Valley, that begins to offset the description of this witness of these steep sections bordering on Honda Creek.

When, on cross-examination, Mr. Steinhart called the attention of this witness to the prices the witness himself had paid for part of the western slope of the valley, purchased in 1911, for the Spring Valley Water Co., only two years before the date of this valuation,—it appears at page 962 of the record, et seq., he bought 268-i in April, 1911, for \$46 an acre, and he appraised it in 1913 at \$60 an acre. He valued 268-p at \$25 and \$35 an acre, and he bought that in 1911 for \$8.31 an acre, and, in explanation, he says that he bought it at a price so low that the party from whom he purchased it considered that he had robbed him. You see we have robbers also in this case, your Honor.

He valued 268-n at \$40 an acre (963), and he paid \$21.72 an acre for it in 1911. He valued 268-y at \$25 an acre, and he bought that in 1911 for \$15 an acre. 268-u he values at \$10 an acre, and he paid, in 1911, six dollars and a quarter for it (\$6.25). He doesn't characterize that as robbery; he merely says it was good work. 268-t he also values at \$10 an acre, for which he paid \$7.59 two years before (964). Then, on pages 964-5, he attempts to explain this marvelous increase which took place in two years, and says:

"A. You see, when you are out buying properties like that, you have to accommodate yourself to several things. It is a great deal harder to buy it than to sell it. You have got to do rapid work, so that the neighbors do not know, from

one neighbor to another, what they are getting. You may get one at \$6 and another at \$7.

(964) "Q. But is it usual for all of the neighbors—I have described about eight pieces to you, and I will describe more—is it usual for all of the neighbors not to know the value of their land?

"A. No. But there was unexcelled work done in the purchase of these properties.

"Q. What was it, hypnotism?

"A. It was good work, from a real-estate point of view.

"Q. They were kept absolutely in ignorance of the character of their property?

"A. Absolutely so.

"Q. Didn't they know about these fortunes that had been made in that neighborhood? You testified to four or five people having made fortunes in that neighborhood. Was there complete ignorance on the part of most of the neighbors as to these fortunes?

"A. But the pieces that you have brought up are sufficiently isolated so that the owners of them could not do as well upon the isolated 160 acres as they could if they had the adjoining land.

"Q. Let us go through that. Let us take some of the adjoining pieces and see. Let us take 268-r. What did they pay for that?

"A. They paid \$6,500 for it.

"Q. That was \$8.12 an acre, was it not?

"A. I don't know how many acres it contains; it looks like three pieces in there—yes, 800 acres."

That is the land the witness had valued at from \$10 to \$12 an acre.

268-s was valued by Mr. Clayton at \$10 an acre. He paid \$8.75 for it.

Now, all this property, your Honor, is within the contours of this Calaveras Valley, this land which counsel says it has been common knowledge was "infinitely" more valuable for reservoir purposes than for any other purpose for years. It was widely known in this section of the country that this was very valuable for water-supply purposes. So, it must be that all of

these purchase prices—so Mr. Clayton testifies, and which appear in Exhibit 135,—included the value of this land for reservoir purposes as well as agricultural purposes. And yet Mr. Clayton, testifying to the value of the land for agricultural purposes only, finds a value very much higher than the purchase price paid two years before.

Of course, some of this land was not within the actual contours of the Calaveras reservoir flow line, but some of it was—j-268 and k-268 had the considerable acreage inside of the flow line; and the purchase price of those parcels in 1911 was \$75 an acre, which must have included every known availability for reservoir purposes, while in 1913 Mr. Clayton values (952) them at \$85 an acre for agricultural uses alone.

f-268. This has a small acreage in the reservoir, and although but \$61 an acre was paid for it in 1911, Mr. Clayton values it at \$70 an acre in 1913 for agricultural purposes alone.

Here is another demonstration of the unsoundness of the complainant's theory as to the cost of reservoir land, of which I shall have something to say later. For the present I used the illustration to show the unsoundness of Mr. Clayton's theories as to the fair market value of that land. Of course, he goes on to explain the owners did not live on this land because the pieces were too small to make a living off of them, and infers, as a result, they did not insist on getting its full market value.

It seems to me that it takes something more than the witness' unsupported conclusions to justify that inference. At any rate, I am unable to justify it, with the statement that he had just previously made, that three or four people had made comfortable fortunes out of adjoining pieces. One of them, it appears, was Mr. Patton. I don't think I shall deal any further with the evidence of this witness. I think that the points I have just brought out more than demonstrate that his valuation is unreliable and excessively high. And I ask your Honor to bear these points in mind in considering his testimony. Mr. Clayton must have worn colored glasses when he valued this land, and the color of the glasses must have been golden.

f. Parks' Testimony.

There remains of plaintiff's unimpeachable Alameda County witnesses only William Parks. Like the other witnesses, Mr. Parks had been found "tried and true" long before the Spring Valley Company called him here. He is a tenant of the company, leasing lands from them in the Calaveras Valley. He has all but about 3,000 acres of it under his control (1033), and the length of his tenure, presumably, depends upon the will of the complainant.

I do not attach a great deal of importance to the testimony of Mr. Parks, because I do not think he was qualified to value the land. His valuations, in themselves, show it. The complainant did not present any exhibit showing Mr. Parks' valuation in tabular form, but from cursorily glancing over his figures it would appear that in most instances he even exceeded Mr. Clayton in his values.

On cross-examination it appears that he has based his values largely upon what he says was the yield of the land, and that his knowledge of what the yield was is derived largely from his books. We called for the books of Mr. William Parks, and Mr. Green and I both examined them, and we finally concurred in the statement which appears in the record (10,815), to the effect that neither of us could make anything out of the books in the way of a showing of net revenue from Mr. Parks' operations. It is my very strong personal impression from his testimony that he didn't know what his net revenue was, and that his appraisal is anything but scientific.

Now, if your Honor please, these are the men upon whom counsel has relied for valuation of the company's Alameda lands, and it is their testimony which he asks you to take, in its entirety, and without giving any weight to the testimony of either Mr. Callaghan or Mr. Parsons.

I do not believe that recrimination is a proper basis on which to justify the appraisals of our witnesses,—their appraisals stand on their own merits, and upon the reputations of the men who made them, for fairness, honesty and ability. Presumably your

Honor will not accept their figures in entirety and, unlike counsel, we are not so super-confident in the unassailability of every position that our witnesses have taken as to expect that your Honor will.

I have drawn attention to what I consider very serious defects in the evidence adduced by complainant's witnesses. And I shall now attempt to justify to your Honor the appraisals made by our witnesses on grounds which, I think, entitle them to greater consideration.

g. Testimony of Defendants' Witnesses.

I stated at the outset of this argument that the burden was upon the plaintiff to prove that the value of its properties was in excess of the figure which our witnesses admitted; and that the burden was not upon us to prove that it was less than the figure which his witnesses stated. All through the trial, and all through his argument, counsel has adroitly sought to shift the burden to our shoulders. And it is only appropriate that I should remind your Honor, now and then, of these attempts. In no case have they been more patent than in the case of the appraisals of Alameda real estate. Counsel has dismissed with a word the testimony of his own witnesses. He has considered it unnecessary to indicate to your Honor upon argument in what way these gentlemen have justified a valuation in excess of that which the defendant's witnesses have admitted. He has tried, rather, to show that Mr. Callaghan and Mr. Parsons did not justify a deduction from the figures of his own witnesses. In this attempt I submit that he has signally failed; for one reason, because the complainant's witnesses had not established figures which, on their own weight, should stand unquestioned.

Again, I call your Honor's attention to the fact that, at the time Mr. Callaghan and Mr. Parsons undertook their valuation, there were no figures to disestablish, no previous valuations of the Alameda properties, nothing upon which to predicate the hypothesis, that these gentlemen were aiming to condemn properties which had an established valuation. On the contrary,

their function was to place a valuation where none had been made before.

Counsel has sought to develop the contention that there was a well-defined plot existing among defendants' witnesses: first, to condemn the Spring Valley properties as real estate; and, second, to support that condemnation by partisan witnesses. This assumption is most unfair, and is absolutely unsustained by the evidence.

h. Farmers and Stockmen.

It was our theory, in valuing these Alameda properties, that as many checks as possible should be obtained from different points of view upon the valuation which we submitted. And, to that end, we called as witnesses three classes of men, all of whom gave independent testimony as to what they saw and found. The first of these classes were farmers and stockmen, such as Mr. Fallon, Mr. Rasmussen, Mr. Rogge and Mr. Connelly, who had spent their lives, or the best part of them, in that section of Alameda County and were thoroughly familiar with the character of these Spring Valley lands, and the character of their products. And I believe that in any case where expert testimony is involved, whether it be a valuation case, or a mining case, or water case, that it is a very great advantage to the Court to have independent testimony from men who are not experts, bearing on facts with which they are personally familiar, and furnishing a test as to the general reliability of the figures or conclusions which the expert witnesses adduce. Counsel suggests that Mr. Callaghan found these witnesses and educated them to his own line of reasoning. And all the evidence he can find to sustain this contention is the fact that Mr. Callaghan accompanied these witnesses on such inspection tours as they made over the company's properties. It was, obviously, necessary for us to have some one accompany them in order to point out the property lines, and show them the land concerning which they were to testify, so that there might be no mistake as to the identity of the subject matter.

Mr. Callaghan was more familiar with those lands than either Mr. Steinhart or myself, and it was only natural that we should ask him to accompany them. That is my explanation of the reason why Mr. Callaghan went with these men to examine the property. Your Honor can accept or reject it as you see fit, in the light of the evidence.

But there is another matter that I want to call your Honor's attention to, in connection with the testimony of these farmers and stockmen. There were none of them educated men. There were none of them who had any particular knowledge of the witnesses involved in this case. There were none of them who are in any way interested in the city of San Francisco, or any of its officers. They did not live here. I ask whether it is not your Honor's experience, in observing the testimony from men of this class, that it is practically impossible for them to maintain a deceitful position. They have neither skill nor intelligence to do so. Take the witness Fallon, the stockman, the sheepman,—so ignorant that he couldn't figure 6% interest on \$2.25. Does your Honor suppose that a man of that type could testify, on the witness stand, to anything but the truth, and stand cross-examination? Absolutely not. A cross-examiner of the skill which counsel has evidenced in this case would have broken his testimony all to pieces. But did he do it? My answer to that question is to suggest that your Honor read Mr. Fallon's testimony and judge him on the record.

And then there was old John Rogge, some time cattle herder, having practically no education. He knew only what he knew, and he told only what he knew. He had raised cattle on the Calaveras range and found that it would only sustain a herd on the basis of one steer to 18 acres (3053). And he said, in those sections 19 and 24,—which are two of the sections on the east side of the Calaveras Valley which counsel describes as being very choice,—that there was oats, and some little clover, and some variety of grasses, and some alfalfa, but not much.

(3053) "The sections on the Mount Day road had poverty grass and hog grass, or foxtail. I did not find any

alfileria and clover in there. There is some alfileria and clover on the side hills down toward Calaveras and Alameda, but it is not a thick growth. There are little patches here and there, but not frequently. The most alfileria and clover is on 19 and 24; those are the best two sections I ever rented. I do not think I paid 50 cents an acre for the land I rented from the Spring Valley Water Co. I don't think I paid over 25 cents, and I know it was not over 50 cents."

And on page 3055 he says:

"Referring to the Calaveras range lands in the spring of the year, you might put 50 head of cattle to the section, and then take them down in the valley when you can get stubble. That is what I always did."

Fifty head of cattle to the section would only be one steer to 13 acres.

"I rented Calaveras Valley nearly all the time from the people that were farming there. Carson and Wells were there. When there was not enough some years, I had the Warm Springs ranch, too, which I rented from Henry Able."

I ask your Honor, doesn't the testimony of this witness absolutely corroborate the statements of Mr. Callaghan, to which counsel has taken such vigorous exception?

In the Pleasanton district, there was Mr. Rasmussen, who (1439) had lived near Dublin for 44 years, and lived on the Chabot place, had farmed it for 11 years, and was familiar with the Head-Hewlitt piece. He said of the Chabot land that some of it was good land and some of it he doesn't consider anything extra (p. 1439).

"In a wet season we cannot raise anything on it, but in a medium season it is pretty fair, and some of it will raise good crops, and some of it not so good. In a dry year we don't raise anything hardly, as in a dry year part of it dries out; and in 1898, a dry year, I was driven out. In a wet year it drowns out."

He is familiar with the land values in the neighborhood of Pleasanton, and considers the Chabot land, the entire 1,200 acres, worth in the neighborhood of \$100 per acre. There is not one scintilla of evidence to show that this witness was called by Mr. Callaghan and asked by Mr. Callaghan to corroborate him, or anything of the sort. He spoke the truth out of his own mind, because that was the only thing there was in it, and the truth corroborated Mr. Callaghan.

I have already spoken of the witness Fallon, who resides in Pleasanton. He is a sheep and cattle buyer. He testifies, on direct examination, that he knows the Calaveras land; has been on it for the last 18 or 20 years, bought cattle there, and they are fairly good, but do not compare with the San Joaquin cattle, and in his opinion it would take from 10 to 15 acres (1391) for a steer for the full twelve months. He says that, in his opinion, these lands would be worth from \$2.25 to \$10, but he would not think there is over one-third of the country that is \$10 per acre land.

He also has lived in the Pleasanton country, and is familiar with the Chabot ranch and owned the land adjoining it at one time. (1394.)

To the best of his memory he had never seen but three crops grown on the Chabot land, and that from his familiarity with the market value of the lands in that neighborhood, the value of that land in December, 1913, was not over \$100 an acre. (1392.) And I say of this witness that which I said of the other two—that if he had not been telling the truth when he testified to those statements on direct examination, he would have been absolutely unable to stand the rigid cross-examination to which counsel forthwith subjected him. I invite your Honor to read that cross-examination and determine whether or not his statements bear the earmarks of truth.

Counsel evidently realizes that he did not disturb those statements on cross-examination, so ventures it as his opinion that Mr. Callaghan had got Mr. Fallon to come in here and corroborate what Mr. Callaghan had said. Fallon, however, testifies

—page 1417 of the record—that Mr. Steinhart had asked him to come to San Francisco to tell about these facts, but that he didn't know he was going to be a witness in court when he came. Is there anything remarkable in that statement? Counsel seems to think that there is.

And again, on page 1424, counsel insinuates to him, on cross-examination, that Mr. Callaghan may have told him what he, Mr. Callaghan, thought the land was worth, and he answers unequivocally that Mr. Callaghan did not tell him.

On the next page he states that Mr. Callaghan had asked (1425) him to come to the court this morning. That statement was not in conflict with his previous testimony that Mr. Steinhart had first asked him to come to San Francisco.

Again, I ask your Honor to read his testimony, and read this cross-examination, and see whether it bears out counsel's insinuations, or whether it doesn't stamp Mr. Fallon as an honest and a truthful man. When your Honor does read this testimony you will find that he absolutely corroborates Mr. Callaghan in his statements as to the productivity of the Calaveras stock ranges, and the Chabot land.

It is the fact of this corroboration that is worrying counsel, not the fact that Mr. Callaghan conveyed the message to Mr. Fallon as to the morning on which he was wanted in San Francisco, and told him that his expenses would be paid.

Finally, we have Mr. Connelly, the only one of the three witnesses who was a personal friend of Mr. Callaghan, so far as the record shows. And if that disqualifies a witness, I suppose he is disqualified, but I submit that it does not. I had not personally met Mr. Connelly prior to the time he made his first appearance here, as this branch of the case was at that time in Mr. Steinhart's hands, and I am unable to tell you now why it was that Mr. Steinhart placed him on the stand before ascertaining more definitely the section of the Calaveras Valley which the witness had visited. But as soon as he ascertained that he had not been on the hills to the east of the valley he withdrew the

witness for the time being, and requested him to make a second trip and more closely examine these hills.

Now, in his first appearance here, Mr. Connelly did not make any statement at all with regard to this land, and he was not on record with any opinions which he would be tempted to confirm, after a more thorough examination. It seems to me, therefore, that his testimony, upon his second appearance, that a more careful examination had confirmed his preliminary views, does not in any way impeach the credibility of his testimony.

Here was a man who had made an entire success in the stock business, in the Corral Hollow country, and was thoroughly familiar with grazing lands in the Mt. Hamilton range. And it is his opinion that the grazing on the Calaveras range is far from being the best, and with the range of values of that class. He describes just what he saw on the trip he made prior to this time, and just what he saw in the previous years in riding over that country.

Counsel has said that Mr. Callaghan was not qualified as a stockman, and that his opinion was of no value. Yet here we find it corroborated by no less than four witnesses concerning whose familiarity with this section of the country there could be no question. Being corroborated in the general conclusion, he is entitled to have the particular instances by which he reaches this conclusion respected. These witnesses generally concur in the testimony that the Calaveras range will not support cattle on a better scale than one steer to from 12 to 15 acres; and that the range of value of those hill lands is from \$2.50 to \$10 per acre. If your Honor will examine Mr. Callaghan's appraisal you will find that that is the range of his values,—in some instances they are higher than \$10. I say that, in this respect, he is absolutely corroborated. Again, with respect to the Pleasanton lands, the testimony of Mr. Fallon and Mr. Rasmussen absolutely corroborates his valuation of \$100 an acre on the Chabot land, which is as good a test as any of the witnesses' knowledge of that section.

Does your Honor think that these four men, none of whom

were probably acquainted with each other before they met here—at least, I don't know it if they were—could have come here and independently testified and conspired to make their testimony agree in every particular, as it did, in the face of counsel's cross-examination?

i. Means' Testimony.

In addition to these farmer and stockmen witnesses we decided also to have an independent investigation made by an agricultural expert, with a view to determining the availability of this land for certain purposes about which there seemed to be some question. So we called Mr. Means:

Mr. Means qualifies as a graduate of Columbian University, Washington, D. C., having specialized in engineering and agricultural geology. After leaving the university he was in the Government surveys for 15 years, 9 of them in the Department of Agriculture, during which time he was engaged in soil investigations largely, and soil surveys (1474), and six years in the reclamation surveys, which is a branch of the Government surveys which has to do with the building of irrigation works. In this office he had charge of the land, and examined all the purchases in the 16 Western States, and for four and a half years he had charge of the operation and maintenance of the Truckee-Carson project in Nevada. Since that time, and during the last few years, he has been in private practice in San Francisco. He still holds an appointment in the Department of the Interior. In connection with his work in the development of agriculture, referring to the determination of soil values, it was necessary for him to determine the irrigability of different classes of soils. In connection with his private practice he is constantly engaged in passing on the value of agricultural land for clients who desire to invest, or for banks or bonding houses who desire to lend money on the land. In connection with this practice he has also examined fruit lands and cattle ranches.

At our request he made three separate trips to the Alameda lands of the Spring Valley Water Co., with special reference to

the Pleasanton lands of the Calaveras Valley; also the hills on the east and west sides of the valley.

He testifies that the Calaveras grazing lands are fair grazing land, and representative of a large body of such land in California (1478). The range of prices is from nothing up to \$10 as a possible maximum. He also examined the floor of the valley with a view to determine whether there were indications of sub-surface irrigation. Examination was made in various gullies or washes, and with the aid of a soil auger he also examined the creek sides. As a result of his examination he says (1478) they indicate no evidence of sub-irrigation whatever, no more than the average California valley land can be regarded as sub-irrigated. He found no indications of cienegas. After examination of the Santa Clara Valley lands, in the neighborhood of Coyote, he concludes that the Calaveras lands do not compare with them in value, or in character of soil. Nor do the Calaveras hill grazing lands compare with the Llagas ranch on the west side of the Santa Clara Valley.

It is his conclusion that the hill lands of Calaveras would carry one steer to 15 acres for a season (1482). With regard to the hill land on the west side of the Calaveras Valley he is of the opinion that it is hill farming land, and that the general value of that type of land is about \$25 an acre (1483); that its fruit-growing possibilities are much less than that of the lands adjoining the Hansen place, on the Milpitas side of the hill (1484).

He also made an examination of the Chabot tract at Pleasanton for us, and concludes (1486) that the Chabot tract is generally heavy adobe, containing a great deal of alkali, generally poor. He went over this land very carefully, and partly on foot, partly in an automobile, and took samples of soil with an auger; looking at the crop, and making an analysis of the soil. He also examined the lands to the west of the Chabot lands—the Borges land—for the purpose of comparison, and concludes they are much superior in quality. He saw no indications of sub-surface irrigation at the Pleasanton lands (1489),

although he doesn't define exactly the tracts to which this statement applies.

His testimony with regard to the reservoir lands I will discuss later. Your Honor will note, upon comparison, that this witness also, a trained scientific expert, corroborates the conclusions of Mr. Callaghan and Mr. Parsons very closely as to the characteristics and value of the Alameda County lands. Having failed signally in the cross-examination to shake this witness' knowledge of the subject with which he was dealing, counsel sought to entirely discredit him by referring to a report which had been made by the firm with respect to the ill-fated Solano Irrigated Farms project.

Nothing in the record appears to me of less significance than the long cross-examination which counsel devoted to this subject. What possible connection there could be between the agricultural qualities of the Solano Irrigated Farms and the Alameda County properties of the company it does not appear. It was a matter of common knowledge, and is stated by the witness, that the ill success of that project was not due in any way to the engineer's report on or to the merits of the property but rather to the financial misfortunes of its backers. The witness incurred very great displeasure from counsel because he refused to give authenticity to a report, a copy of which counsel had, and which he stated emanated from the office of the witness and his partners. During the intervals in his cross-examination the witness made an attempt to determine from his office records, and by telegraphic message to his partner, whether the report in question was authentic, and he reported to the counsel that he had been unable to find either a copy of it, or anyone who had knowledge of it. It made very little difference in the case because, when counsel read to him portions of the report, the witness agreed that the contents were correct. I am perfectly willing to leave it to counsel to discuss in his rebuttal argument, if he thinks it worth while, the effect of this report on the case before your Honor. To my mind it is absolutely and unqualifiedly irrelevant and immaterial.

Counsel informed me the other day that, after Mr. Means left the stand, that he, counsel, obtained a signed copy of the report in question. I am willing to accept counsel's statement of that fact, if he considers it of any significance, but I do not think that the existence of the report in any way impeaches the witness's credibility. All that he said was that he did not remember it and that he could not find any records in his office of its existence.

The remaining witnesses who testified in behalf of the defendant as to the value of the Alameda lands, are Mr. Hatch, Mr. Callahan and Mr. Parsons.

j. Hatch's Testimony.

The testimony of Mr. Hatch is of interest as coming from a man who was personally familiar with the Calaveras Valley, and who has had land for sale in that vicinity. He is a real estate man, operating in conjunction with the Rucker Realty Co., in San Jose and has been connected with them for the last nine years (1667). Prior to that he farmed on the east side of the Calaveras Valley, covering in his farming operations some three or four hundred acres, including fruit, grain and hay crops. He corroborates Mr. Callaghan in the view that the Llagas lands, on the east side of the Santa Clara Valley, are much better than the California grazing lands on the hills to the east of the Calaveras Valley. He is familiar with the soil of the Snell Ranch to which Mr. Clayton had referred, and testifies that the \$75,000 selling price included about \$19,000 worth of stock and personal property. He made a sale in the neighborhood of the Llagas ranch in 1912, of 837 acres, for \$9,500, including 100 head of stock valued at \$2,000. That would make the selling price of this ranch a little less than \$10 an acre. He had the Weller Ranch listed in his office in 1901, up to the time it was sold to the Spring Valley Water Co., and the price at which it was then offered for sale was \$25 an acre. His opinion of the grazing lands on the east side of the Calaveras is, that their highest value would not be over five or six

dollars an acre, (1677); and he values the Levy place, on the west side of the valley at about \$40 an acre, Ratton place at \$40 an acre; the Santos place at about \$20 an acre, and the Weller place at about \$25 an acre. The testimony of this witness was not shaken in any way on cross-examination, and I invite your Honor to compare his figures with those of Mr. Callaghan, with a view to determine whether they do not absolutely corroborate the figures of the latter.

k. Callaghan's Testimony.

I now come to the testimony of Michael Callaghan, which has been so vigorously assailed by counsel in his opening argument, and which I have just shown has been so strongly corroborated by the testimony of every type of man who could be presumed to pass fairly upon the value of these lands—farmers, stockmen, agricultural experts, and neighboring real estate men. Notwithstanding all this corroboration, counsel says that Mr. Callaghan's values are partisan, and not worthy of credit. Let us see whether they are, or not.

Counsel classifies Mr. Callaghan as clever, but with no training or experience as an expert, willing to become an advocate, and brands him as partisan as counsel for defendants. I shall not take much time here in a discussion of the honesty which this witness exhibited in the expression of his opinions. Your Honor has had the same opportunity that we all had to judge of that during the two long weeks that he spent in replying to the incessant fire of questions directed at him by leading counsel for the complainant. Your Honor has, long before this, formed your own impressions of his credibility. There is little that I could say here that could alter impressions thus formed from first-hand observation of the witness. Nor have I any desire to alter the conclusions which I feel sure that your Honor must have formed.

1. Qualifications.

Michael Callaghan, with his common-school education, tireless energy, and his native Irish ability, was one of the most

interesting characters who have appeared in this case. It was through his own efforts and his own industry that he arose from the humble work of a sheep herder in the Alameda County hills to a position of trust and honor in the community in which he resides. He is a director of two banks in Livermore, of a Mutual Building & Loan Association in that town; is on the finance committee of both banks, and the appraisal committee of the Building & Loan Association. He is engaged in the warehouse business and, in conjunction with that business is constantly buying and selling the grain products of the farming lands in that vicinity. Prior to the time that he was in the warehouse business he was engaged in the purchase and sale of real estate in Livermore, in that vicinity, and became familiar with land values in the Livermore Valley, although the volume of the sales which he made was not very great. He was retained by the Western Pacific Railroad Company, in the right-of-way department from 1904 to 1909, in conjunction with the purchase of rights-of-way in the vicinity of Livermore. He is an eligible for appointment as Senior Land Appraiser under the Interstate Commerce Commission. And, although it is outside of the record, I am sure that counsel will not object to my stating that, since the trial of this case, he has been rewarded, as a "deserving Democrat," with the appointment to postmastership at Livermore.

He testifies to a thorough familiarity with all of the Spring Valley lands of Alameda County, his familiarity with the grazing lands having been obtained during his early connection with stock-raising, and his familiarity with the lands in the Livermore Valley having been acquired in conjunction with his frequent appraisals for the financial institution that he represents, and his real estate operations.

Your Honor had occasion to observe, during our trip over the Alameda properties, how thoroughly familiar this witness was with the location of every parcel, and the principal characteristics which would affect its value.

m. Fairness of Attitude.

Counsel has suggested in his argument, first, that Mr. Callaghan was a partisan witness. I say to your Honor that the testimony which counsel read did not demonstrate it, and I invite your Honor to read the testimony again which is contained in counsel's argument, and see whether or not it did, if you leave off the inflections and pauses with which counsel was wont to punctuate it. Like every other witness here, Mr. Callaghan sought, during his long cross-examination, to substantiate, as best he could, the values which he had placed on these properties. But, aside from that, I find nothing in his testimony which shows that he ever intended to be or was unfair to the Spring Valley Water Co., in placing his original figures upon the land.

It is perfectly true that Mr. Callaghan knew nothing about the value of land for reservoir purposes, as such. It is equally true that he should have admitted from the start that his knowledge in that respect was deficient. But I think also his cross-examination on that point was improper. We did not ask Mr. Callaghan about reservoir values; we didn't ask him to testify on that subject. Counsel proceeded, on cross-examination, to qualify him to his own satisfaction. He then proceeded to impeach his own witness, so to speak. So far as I can gather from Mr. Callaghan's testimony on that point, the only thought that was in his mind was that he could go out and buy that land at its market value for all purposes as he found it and, having acquired it could do what he wanted with it. That was the only idea that Mr. Callaghan had in testifying as to reservoir value. And upon reading Mr. Clayton's testimony as to the purchase prices that he paid for the land in the Calaveras Valley that he bought in 1911, which was bought for reservoir purposes, I am very much of the opinion that Mr. Callaghan stated the truth when he said that the company purchased that land at its market value for all purposes, although it must be said that Mr. Callaghan's valuation of those particular parcels is quite a little less than Mr. Clayton's. Coming, as

this branch of the cross-examination did, at the end of two weeks' grilling which this witness received at the hands of counsel on the other side, and at a time when he must have been mentally, if not physically, worn out by the ordeal to which he had been subjected, it seems to me that your Honor should attach very little importance to the conflict which appears in his testimony on that subject. It was adduced by counsel for purposes which counsel knows best. I do not rely upon it to sustain any contention that we have in this case, and I shall not further refer to it.

The next criticism directed by counsel to this witness was that he was not qualified to value the land. I submit that the results of his work in appraising the land when set side by side with the testimony of the various classes of witnesses whom I have just discussed, demonstrates that he was qualified, and that his testimony is in every respect corroborated by the independent views of men concerning whose qualifications counsel has failed to indicate any flaws. I believe that in the case of this witness, just as in the case of Norwood Smith, counsel has wholly failed to understand the point of view which he took in his appraisal, and the methods by which he reached his results.

n. Basis of Valuation.

He says that Mr. Callaghan appraised these lands on the basis of what they would produce, not on the basis of a knowledge of comparable sales. In this, as I shall show, counsel was laboring under an entire misapprehension. Callaghan did refer repeatedly to the character of the soil and the quality of the crops which he thought would be produced by that soil, but nowhere in his direct testimony did he reduce this to any mathematical demonstration of value. And therefore I say, it could not have been the basis of his figures. It was one of the considerations which he took into account in determining the figures which he could use within given range of value, but it was not the measure of those figures. And then, because the witness on cross-examination, was apparently unable to give counsel,

off-hand, a mathematical demonstration of the value of the purchases, based on their productivity, and was unable to tell him from memory how many sacks of grain or barley or oats, or how many tons of alfalfa a given piece of land would produce, and what the net profits from production would be, counsel concludes that his figures are unsupported by any demonstrable method. In this belief, as I have stated, counsel is entirely under misapprehension.

o. Comparative Sales.

Almost the first thing Mr. Callaghan did, before undertaking this appraisal, was to gather accurate information as to all the sales of real estate that had been made in the vicinity of the various subdivisions of land.

As he appraises each subdivision he refers, in his direct testimony, to the sales that he used as a guide to values in that vicinity. Take, for instance, the Arroyo Valle, which is the first subdivision that he takes up after giving his valuations. He says, (1723), in response to a question:

“Q. In placing your valuation upon the Arroyo Valle, Mr. Callaghan, did you take into consideration any sales of land, in the vicinity comparable with the lands of the Spring Valley Water Company?

“A. Yes, I did.

“Q. You might mention some of those?

“A. I have here a map of the Murray Township, upon which I marked the location of the Spring Valley Company lands in the Arroyo Valle in red and also noted in black the sales which I consider as comparable to the Spring Valley lands in the Arroyo Valle.

Farther down he says:

“MR. SEARLS—Q. Will you describe some of those sales, Mr. Callahan, and give the locations, and also your reasons for stating that they are comparable with the Arroyo Valle lands?

“A. Well, take section 5 in township 4 south, range 3 east, and section 33 in township 3 south, range 3 east; section 33 sold

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in 1908 from the McLaughlin Company to Frank Kelly for \$7 per acre. Section 5 sold for \$6 per acre at the same time. Section 5 is good pasture land, with the Mocho running through it. Section 33 is as to the larger part in the Arroyo Seco Valley. Some areas on both sections capable of cultivation. Both are more accessible to Livermore than the Arroyo Valle lands.

"Q. How far are they from the Arroyo lands, approximately?

"A. Section 5 is a mile from the Arroyo Valle lands; section 33 is 2 miles; that is, in an air line.

"Q. Any other sales? Was not section 9 included in that sale from the McLaughlin land company to Kelly?

"A. No, Kelly did not buy section 9. The sale from Pope to Patterson; you pass through the Pope land before arriving at the Spring Valley Water Company's land in the Arroyo Valle. This was sold in 1889 at \$6 an acre; a little less than that, really it was, but approximately that. There were 4000 acres in the tract.

"Q. In what year was that sale?

"A. 1899.

"MR. McCUTCHEN—You first said 1889; was it 1889 or 1899?

"A. 1899.

On page 1725 he gives additional sales of land which he feels to be comparable with the Spring Valley Company holdings in the Arroyo Valle Division.

For your Honor's convenience in examining Mr. Callaghan's valuations I have had prepared a table showing the sales of comparable lands which he used as a guide in arriving at his valuation of the Spring Valley properties.

This table shows the name of the purchaser, the name of the seller and the page of the testimony at which he spoke of each particular transaction. The table speaks for itself. I ask that the table be marked "18."

THE MASTER—Very well, it will be marked "18."

Wednesday, August 30th, 1916.

It is not my intention to take further time on this argument in showing that this witness had these comparable selling prices in mind at the time that he made his valuation, and that he was, to some extent at least, guided by them. Your Honor will, in any event, desire to examine the record on this question; and the table which I have just handed you will enable you to make this examination.

Counsel made particular reference to his lack of knowledge of sales in the vicinity of the Pleasanton lands. I refer your Honor to the testimony on pages 1744-1749 of the record, where the witness enumerated a number of sales of land in that vicinity he says are comparable to the Spring Valley Pleasanton parcels, and, as distinguished from Mr. Gale, Mr. Callaghan gives the prices of the sales so that your Honor can determine whether or not they justify his valuation. Counsel devoted a great deal of time, during the cross-examination of this witness, to questions with respect to the value of the Calaveras land and its availability for fruit-growing purposes. Of course, Mr. Callaghan had qualified only in the most general way with regard to any knowledge of fruit-growing, in fact, just about to the extent that Mr. Gale qualified on this subject. Yet counsel was astute enough, on cross-examination, to devote a great deal of the record to examining Mr. Callaghan on his knowledge of fruit-growing, and comparatively little of it examining on his knowledge of stock grazing lands. But when it came to Mr. Parsons, who was unquestionably qualified on the values, and on the availability of land for fruit-growing purposes, and knew but little about stock ranches, counsel, with equal astuteness, devoted his cross-examination of Mr. Parsons almost exclusively to stock grazing lands and asked him practically no questions about their fruit-growing basis of value.

All of this was good strategy but it didn't help materially to enable your Honor in discovering whether the witness really knew what he was talking about.

With respect to the answers which Mr. Callaghan gave

counsel on the value of the grazing lands, and the selling prices of cattle, etc., I have only this to say, that his values were absolutely corroborated by the witnesses Fallon, Rogge, Means, Connolly and Hatch concerning whose knowledge of grazing lands counsel was unable to develop any deficiencies. Respecting the knowledge of the selling price of beef, there is certainly room for argument as to the interpretation which counsel places on his testimony. The witness spoke of buying beef by the head, and he was referring, of course, to the purchase of beef cattle on the stock ranges of Mexico, Arizona, and the large ranges. Counsel seems to think that this does not indicate knowledge of the business of stock buying. Personally I cannot qualify so as to answer him, but I would be interested to know whether the stock buyers who go out on these ranges to purchase cattle take with them a pair of scales with which to weigh the animals, or whether, as a matter of fact, they do not buy them by the head, transport them to the ranges near the markets, fatten them for sale, and then dispose of them to the slaughter houses, by the pound, as beef cattle. That would appear to me to be the logical interpretation of the apparent conflict between Mr. Callaghan and Mr. Fallon on the basis of beef purchases. So far as the prices per pound in the market go, I don't know whether Mr. Callaghan or Mr. Fallon stated them correctly, and I am unable to see any importance, in this case, whether they did or not, because it is obvious that neither witness made any direct arithmetical computations to determine the value of the land from the price per pound of beef.

I may apply similar remarks to the witness' characterization of the soils in the different parcels which he was appraising. He described the soils on his direct examination in describing some of the parcels, but it does not appear, so far as my investigation determines it, that there is any arithmetical connection between his prices and the soils in the land. The soil was something of a guide to him, as to the character of the crops that could be produced, and that is all. Counsel consumed hours of the court's time on cross-examination, asking

him about the difference between the various parcels, and frequently the witness indicated differences in soil as being one reason for difference in values. A good deal of this testimony was, necessarily, from memory, because his notes did not give him, in every case, the information; and counsel frequently objected to his using his notes if they did. Again, I am unable to see or understand the importance which counsel attaches to conflicts in testimony on this branch of the case which is more a test of memory than of the soundness of his original conclusions. As the witness frequently said, "If you will come out on the land I will show you the difference between those parcels." It was on the land that he made his appraisals, and made his distinctions in price. And while the statements he may have made in court here were interesting as a test of his memory I am unable to see in what way they furnish your Honor a guide with which to determine the reliability of his testimony.

In conclusion I submit that the range of values which Mr. Callaghan used for the various types of land are amply substantiated by the comparative sales which he used as a guide in making his original appraisal; that the particular selling prices of each parcel within a given classification were in a large measure the result of the honest judgment of the witness, exercised after the most thorough examination of the property which has been made by any real estate expert valuing lands on that side of the bay; that these prices are shown by the witness's testimony to have been made while he was upon the land at the time he was appraising them; that the record shows that he had sufficient general knowledge of agricultural properties to make an intelligent differentiation, within the limits indicated by his comparative sales; and, finally, that his conclusions both as to the availability and value of the property which he was appraising, are amply corroborated by the independent testimony of men who are familiar with the particular classes of land involved. On this showing I commend the testimony of Mr. Callaghan to your Honor as of very great weight in determining the fair value of the company's trans-bay properties.

p. Parsons' Testimony.

There remains now to be discussed the testimony of Mr. Parsons. Here was another witness to the abuse of whom counsel devoted considerable time in his argument. He was variously designated by leading counsel for the plaintiff as a follower of Callaghan, a farmer among bankers, a banker among farmers, and a "dodo." I believe that I am speaking correctly, from an ornithological point of view, when I say that a dodo is a rare specimen nowadays; that by the time your Honor has read Mr. McCutchen's argument and my own in this case, if you believe us both, there will be danger of your concluding that a witness who knew what he was talking about was a rare specimen in this case. As Mr. Parsons is the only witness who has been designated as a dodo it follows that, for the purposes of this case, he would be one of the rare specimens who knew what he was talking about. There may be an undistributed middle in the syllogism which I have just given, but it is a sufficient reply to that branch of counsel's argument. I am not going to discuss Mr. Parsons' testimony at any length. I think the record refutes counsel's contention that he did not reach his valuations in the first instance independently; and that counsel has suggested no reason which your Honor ought to entertain for discrediting his testimony in this respect.

The principal feature in Mr. Parsons' testimony to which I wish to direct your Honor's attention is the fact that he was qualified, and better qualified than any witness in this case to testify as to the value of land available for fruit raising, and that, upon this topic, his direct testimony is unshaken by cross-examination.

As I said before, Mr. Olney, in cross-examining the witness, saw fit to ignore the subject upon which he was best qualified, and to ask him about those concerning which he was the least familiar.

Mr. Parsons qualifies as a farmer and fruit grower residing in the vicinity of Hayward, Alameda County, and owning some 400 acres of land in that locality. He is an educated man, having

graduated from the engineering corps, United States Naval Academy. He is president of the Bank of Hayward, and of the Hayward Bank of Savings, and, in his capacity as an officer of that bank, passes repeatedly upon the value of lands for the purpose of loans—was connected with those banks for 12 or 14 years as a director, vice-president, and president, and, during that time, has had occasion to pass upon many loans. In addition to that he has made 200 sales of land in Alameda County for his own account, or those of others, most of them being in connection with the acquisition of the right of way for the Western Pacific Railroad, the Stanislaus Electric Power Company, the Central California Traction Company, and the Netherlands Farming Company in Yolo County. The section of the country in which bank loans are made runs from the Alameda County line north, to Hayward, and over to Niles. (p. 2535, 2538).

He has been engaged in fruit-growing, general farming, and dairy business for about 28 years, and has raised grain, apricots, almonds, prunes, cherries, pears, plums, and vines (2549). He has had 300 to 350 acres planted to fruit. He is familiar with other fruit lands in Alameda and Santa Clara Counties and, as a result of his own efforts and familiarity with other lands he is familiar with the character of soil which will grow fruit, and the conditions under which fruit can be favorably grown. And with this familiarity, derived from actual experience as a farmer in this locality, and not from theoretical studies as a college professor, Mr. Parsons has this to say about the lands on the west side of the Calaveras Valley. Commencing on page 2636:

“Q. Now, with regard to the lands on the west side of the Calaveras Valley, and I am referring now to the hill lands, it has been testified here that those lands are suitable for fruit growing. Basing your opinion upon your experience as a fruit grower and your knowledge of the fruit business, what would you say as to the adaptability of those lands for fruit growing?

“A. Well, I would say that although fruit might be grown in spots on those slopes the best results and the most money would be obtained by hay and grain and pasture.

"MR. McCUTCHEN—I ask that that answer be stricken out as not responsive.

"MR. SEARLS—I consent that the answer go out. Will you read the question to the witness, Mr. Reporter?
(Question read by the reporter.)

"A. I would say they are not adapted to fruit growing except in spots.

"Q. Do you mean by that that no fruit could be grown on them?

"A. No, I do not. I mean that there are places there where you could grow fruit trees, but not to make a commercial proposition of it.

"Q. In your opinion how would these hill lands on the west side of Calaveras compare with the Santa Clara Valley lands, I don't mean the floor lands of the valley, I mean the lands in the hills immediately adjoining the floor of the Santa Clara Valley in which fruit is successfully grown?

"A. I do not think there is any comparison. I think the land on the west slope down into the valley is very much better adapted to fruit growing.

"Q. Which valley do you refer to now?

"A. The Santa Clara Valley. It is very much better adapted to fruit growing and early vegetables than the slopes of the same ridge in the Calaveras.

"MR. McCUTCHEN—Q. May I ask whether that is on account of the soil condition?

"MR. SEARLS—I would suggest, Mr. McCutchen, that you take that up on cross-examination. You will undoubtedly want to go into that rather fully.

MR. McCUTCHEN—Very well."

If your Honor examines the cross-examination, you will find that the cross-examination did not take up, to any extent—of course Mr. Olney did the cross-examining there—the testimony of this witness on his knowledge of fruit land, and his ability to express the opinion that he did; and that opinion stands amply backed by his qualifications, and not shaken by cross-examination.

MR. McCUTCHEN—I don't think it is of much interest, Mr. Searls, but what is your theory for his reason for stating that land on the west slope was better than the land on the easterly slope of those hills. What could make it better?

MR. SEARLS—I think the difference in the climatic conditions, and the soil conditions.

MR. McCUTCHEN—That is what I am suggesting, what could make a difference in the soils?

MR. SEARLS—I could not hazard a guess. I would say this, though, Mr. McCutchen, the strongest point that you people have been able to make in favor of your showing that the Calaveras west slope was adapted to fruit growing, was the fact that there were some orchards there, and I think it was Mr. Means who said you can find anywhere in the state of California practically, family orchards, on almost any kind of land, and the fact that those orchards may grow in spots and may be productive does not necessarily mean that you can turn all of the hillsides into the same kind of crops.

MR. McCUTCHEN—I simply wanted to get your notion about the soundness of Mr. Parsons' statement. We have frequently driven up the road from Milpitas to the top of the hill—you have and I have, and so has his Honor, and there are not a great many orchards as you go up to Milpitas to the top of the hill; there are orchards there, and there are orchards into the slope of the valley; I never could see any rhyme or reason in Mr. Parsons' statement that the lands on the easterly slope had a different sort of soil than the lands on the westerly slope. They were unquestionably made in the same way.

MR. SEARLS—Assuming that to be the case, you still have on the westerly side of that hill an exposure which is much more favorable to fruit than the exposure on the opposite side, which is open to cold winds and colder temperatures, which come from the higher slopes.

MR. McCUTCHEN—There is a difference in that respect unquestionably, but I understood Mr. Parsons to say there was a difference in the soil; Mr. Callaghan also said there was a difference in soil.

MR. SEARLS—Again I asked him:

“Q. How, in your opinion, do the Hansen lands compare with the lands on the east slope of the hills to the west of

Calaveras Valley? I am referring now to the Snell-Hansen lands.

"A. I think better, very much better.

"Q. Why?

"A. On account of the exposure and the accessibility.

"Q. Any other differences?

"A. Plenty of water.

"Q. The exposure you refer to is what exposure, in the case of the Hansen place?

"A. It is a westerly exposure, south and westerly exposure.

"Q. Is there any generally recognized superiority as to that exposure?

"A. There is along that range of hills."

Now, the testimony which I have just quoted clearly explains this whole situation with regard to the fruit-growing availability of those lands on the west and southern slopes of Calaveras Valley. There were family orchards on the farms that used to dot those slopes prior to the time at which the Spring Valley Company had bought them, just as there are family orchards in practically every farm in the State of California, and the existence of those family orchards means that there are parts of practically every farm which will support healthy growing fruit trees; that is all that it does mean, and that is all that the existence of these orchards demonstrates.

I ask your Honor, now, if it is not altogether probable, if fruit-raising had been anything like the success that counsel claims it would be on those slopes of the Calaveras Valley, that when the company came to buy that property as they did, in 1911, they would have found large acreages of orchards and not merely hillside farms with a few trees in a family orchard? But they did not find commercial orchards, and the reasons they did not are undoubtedly the reasons Mr. Parsons gives in the testimony which I have just read, and the reasons Mr. Means gives, namely, that the quality and depth of the soil, and the colder temperature which habitually prevails in the north and east slopes of the ridges, as compared with the warmer thermo

belts in the lower part of the western slopes made it unprofitable on a large scale. The thoroughness of the examination made by both Mr. Means and Mr. Parsons, to my mind, entitles their testimony to more weight than that of Professor Wickson, which was based on a cursory examination, practically limited to the remains of the old family orchards to which I have alluded.

Regarding the boasted superiority of the range lands in the Calaveras due to heavier rainfall, this witness has to say:

"I agree with Mr. McCutchen that rainfall in the Calaveras was probably heavier than in the Arroyo Valle or in the Mocho. I should say the length of the rainy season would keep up the moisture in the ground whereas you might have a heavy rainfall, and it would run off so fast that it would do the ground no particular good. It would wash and corrode the soil." See Exhibit 187.

I had a table prepared showing the comparative sales which Mr. Parsons used as a basis for his valuation, which I ask permission to insert at this point. I think the record shows that Mr. Parsons also had access to the sales that Mr. Callaghan used and that Mr. Callaghan had access to the sales that Mr. Parsons had; in other words, they gathered that data jointly, I will also hand in at this time a tabulation showing the same character of data used by Mr. Hatch.

TABLE 19.

**SOME COMPARATIVE SALES USED BY PARSONS IN
ADDITION TO CALLAGHAN'S TO CHECK HIS
VALUATION OF SPRING VALLEY LANDS**

PLEASANTON

Sale and Location

Date Sale,
Price, etc.

Comparison to S. V. Land

Borges Ranch
See CallaghanGraded—27 Ac. at \$250.
and 20 Ac. at \$100.00
(2661)**SAN ANTONIO**

Winship to Moy

640 Ac. in Sect. 11, T.4 S.
R. 3 E.
(2587)10/5/10 640 Ac.
\$7.50 per ac.
(2587)Compared to Arroyo Valle
(2587)
Compared to Sect. 24 Cala-
veras
(2695)
Compared to Oak and
Poverty Ridges (2960-1)**ARROYO VALLE**

Pope to Patterson

Sect. 1-2-11 part of 12,
T. 4 S. R. 2 E. on road
to Arroyo Valle
(2591) (2842-3)Purchased 1899 at
\$6.00 per Ac.
(2592-3)Compared to Arroyo Valle
(2592)**CALAVERAS**

Cook to Parsons

N. $\frac{1}{2}$ of Sect. 22, T. 3 S.
R. 1 W.
(2696)1912—320 Ac. at
\$22.50
(2696)Compared to Sect. 24
Calaveras (2696)

Hess to Victorine

Doublin Ridge (2696)

1908—160 Ac. at
\$15.00 per Ac.
(2696)Compared to Sect. 24
Calaveras (2696)

Resale

Victorine to Cook

1911—160 Ac. at
\$20.00
(2696)Compared to Calaveras
Sect. 24 (2696)

Goad Ranch

Goad to M. F. Vargas
(See Callaghan)
(2660)10/1/12—549.06 Ac. at
\$35.00 per Ac.
(2660)Comparable to all hill
farming land on W. side
of Calaveras Valley, San
Antonio, and De Saisette
M 239 (2660-1)
Hill Lands Hadsell
(L 239) (2973)Goad to O. Vieux
(2659)4/31/08—280 Ac. at
\$30.00 per Ac.
(2659)

Comparison (3002-3)

Goad to A. F. Vargas

9/27/09—460 Ac. at
\$25.00 per Ac.
(2660)

Bollinger Ranch

(See Callaghan)

Offer to sell 976 Ac. 60% Farming and 40%
for \$35,000.00 Pasture (2658)
(2658)Comparable to all west
side of Calaveras (2658)
(2637)

PARSONS used sales mentioned by Callaghan in addition to these to check himself (2961)

NOTE:—Figures in brackets refer to page number of transcript.

TABLE 20.

**SOME COMPARATIVE SALES USED BY HATCH TO
CHECK HIS VALUATION OF SPRING
VALLEY LANDS**

Sale and Location.	Date Sale, Price, etc.	Comparison to S. V. Land
Llagas Ranch	1913—3800 Ac. for \$75,000 (1668-9)	
Snell Ranch		
Ex. 206, Situated in Canada de Pala, E. Boundary is 1st Grant line W. of Mt. Hamilton, W. Line of Canada de Pala, south boundary is grant line between Canada De Pala and Los Huecos, E. boundary is line between Canada de Pala and Yerba Buena, north boundary commencing opposite Sect. 5 and running S.W. Between E. & P. in De Pala (S. 60 deg. W) from point where west line of Sect. 5 meets grant line.	1911—5800 Ac. for 75,000 Imp. = \$19,000 (1669-70)	
Holthouse to Bowle near Llagas Ranch	837 Ac. for \$9500 (included 100 head of stock valued at \$2,000) (1670)	

CONNOLLY

Corral Hollow Ranch	1915—4,000 sold for \$6.00 (1430)	Compared to Calaveras (1430)
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NOTE:—Figures in brackets refer to page numbers of transcript.

With these observations I shall close my discussion of the Alameda lands, except as to the question of reservoir values. I have sought to give in as brief form as was consistent with the necessity of replying to counsel's lengthy argument on this branch, the reason why I believe the testimony of our witnesses is entitled to greater weight than that of the plaintiff's witnesses. And if your Honor has not already reached your conclusions as to the value which you will place on these lands I invite you to again examine the record of the testimony of Mr. Callaghan and Mr. Parsons, and of the witnesses who corroborated them; and of the sales upon which their values were based, and ask yourself whether they have not demonstrated beyond the shadow of a doubt that the complainants are entitled to no higher value on these lands than the amounts to which they have testified. The values to which I refer may be summed up as follows:

AMOUNT.

Mr. Callaghan, Arroyo Valle	\$ 55,143.30
Mr. Parsons, Arroyo Valle	55,783.30
Mr. Callaghan, Pleasanton lands	1,443,728.78
Mr. Parsons, Pleasanton lands	1,447,502.67
Mr. Callaghan, Sunol Drainage lands	382,872.05
Mr. Parsons, Sunol Drainage lands	395,997.90
Mr. Callaghan, Niles Canyon lands	35,595.13
Mr. Parsons, Niles Canyon lands	35,595.13
Mr. Callaghan, San Antonio lands	184,706.25
Mr. Parsons, San Antonio lands	189,686.95
Mr. Callaghan, Calaveras and Upper Alameda lands	591,187.18
Mr. Parsons, Calaveras and Upper Alameda lands	595,326.79

Grand total, Callaghan\$2,693,232.69

Grand total, Parsons 2,719,892.74

q. Utility of Alameda Lands.

I come now to the utility of these lands. I think I have already said that the decision in this case is probably going to turn in a large measure upon the findings that your Honor makes as to the amount of real estate which shall be included as used and useful, and I think I have suggested that probably the ownership of these large tracts of land which are not directly used for water storage or distribution purposes is one reason why the company has found the Supervisors' rate inadequate to meet its ideas as to the proper return on its investment.

With respect to the Alameda County lands, your Honor has been asked by the plaintiff's engineers to allow the plaintiff a wide latitude in the matter of selecting lands for future utilization, and alleged equitable grounds have been suggested for the inclusion of all the Pleasanton lands and all the watershed lands.

Again I refer your Honor to the point which I made at the beginning of this argument, that the question is one whether these lands are, as a matter of fact, used or useful, and that issue should be determined on the facts as they exist, and not on the question as to whether the complainant did or did not make a mistake when it purchased them.

It must be remarked that the plaintiff in this case does not

have all its investment tied up in water-producing properties. Far from it. They themselves have excluded large acreages of land as having no connection with their San Francisco water supply, and yet those acreages which they have excluded are part of their assets, are presumably enhancing daily in valuation and will some day yield the company a handsome profit. Much the same may be said of the Merced lands and the Pleasanton lands, and possibly some of the watershed lands, although I think that the last are of somewhat different category. Possibly the day will come when all of the Calaveras and upper Alameda lands will come into use either in supplying San Francisco or the east bay cities, although I do not believe that that day has as yet arrived. The company must settle with the Niles Cone farmers before they can make additional diversions from the Calaveras Valley.

The same may be said with a lesser degree of probability of the San Antonio and Arroyo Valle lands. But so far as the Merced and Pleasanton tracts are concerned—I am now referring to the portion of the tracts which we have excluded—those lands never will be used or useful in supplying the city with water. They will be held by the company until a profitable opportunity occurs, and then disposed of. There is no question of their future use involved in either of the two cases. The Pleasanton lands are in use, or they are not in use; and the determination of that question should rest upon the situation as it was at the date of this valuation. There is some testimony from Mr. Metcalf and Mr. Eastman that the company was threatened with litigation in 1910, and bought all these ranch lands to avoid the issuance of an injunction directed against their pumping below Pleasanton. I do not criticise the policy of the company in acquiring lands if they thought it was cheaper to do it as an investment proposition than to condemn the water rights, nor have any of our witnesses criticised that policy. What I do criticise, and what Mr. O'Shaughnessy and Mr. Dillman criticise, is the attempt of the company to make the water rate payer bear all the loss and inadequacy of return on their real estate investment simply be-

cause in their judgment the time has not yet arrived to realize the profit from the sale of lands. It seems to me perfectly obvious from all the testimony in the record that the only part of the Pleasanton investment that is of any utility is the underground water rights. Once secure in the ownership of that water right, the company has no further use as a water-producing proposition for the rest of the land. Their case might even be stronger if the ownership of the lands insured absolute security in the ownership of the water rights; but it does not. The hydrographic records introduced by Mr. Lee and the testimony of Mr. O'Shaughnessy show that the company cannot develop the immediate yield of these properties, because it has not settled with the land owners to the east of them. The best they can do is to say that ownership affords them a partial security. Some one, I think it was Mr. Herrmann, suggested that the Pleasanton lands were in the same category as a reservoir, only in this case the reservoir was underground. Well, if complainants had limited themselves to telling us on some reasonable basis what the valuation of the 4,000 miles of underground, minus about 50 feet of clay cap of these properties, was, we might even listen to their argument. But that is not what they do. They want to value the lands as alfalfa-producing land, grain-producing land and vegetable-producing land, all of which value results from the part of the land which has no reservoir use. All that surface value is attributed to hypothetical sub-surface irrigation possibilities. The case is clearly distinguished from that of the surface reservoir. Nor is the problem of Pleasanton comparable with one with which the city of Los Angeles was confronted in acquiring the acreage of gravel-bearing land near the Owens River. The land in that case was mostly Government land and of very small value, as will appear from the testimony of Mr. Martin of Los Angeles and of Mr. Lee. (pp. 10,087-88, 10,118.) If the Pleasanton acquisition had been a matter of paying \$2.50 to \$10 an acre, we would not quarrel with the company over the acquisition. Water rights alone are worth more than that. It is only when they attempt to saddle the city rate-payers with the obligation of paying return on a huge in-

vestment which represents real estate purely and simply, and not water rights or water-rights protection, or any other useful water-supply purposes, that we object.

Mr. Lee has scientifically valued the water rights, or the right to take water from beneath those lands which the company has taken during these years. The evidence shows that the ownership of the land does not entitle them to take any more than they have taken. This valuation has been allowed in addition to the riparian right valuation below the lands on Laguna Creek, and covers all the useful elements of the tract. The legal measure of the value of the right to take this water is clearly damage to the land resulting from the taking.

Having satisfied the legal requirements in this respect, there is nothing further to value. Counsel has sought to make a great deal of the fact that the city originally included these lands in the condemnation suit, but his contention, if it is worthy of any consideration, is met by the facts shown in Mr. O'Shaughnessy's testimony (pp. 10,737-10,752). There is one other point, perhaps, involved in the testimony of this witness. He intimates that if the yield of the lands had been anything like the amount of water that the company first expected to get from them (some 72 million gallons) it might be worth while to purchase the land outright; but such is certainly not the case when the additional yield they get by the purchase is less than two or three million gallons in addition to that which they had taken previously.

Your Honor can determine that from an examination of the records in Exhibit 187. There may be a question there as to whether the water company was not taking previously more water than they were entitled, as a matter of law to take, and therefore when they acquired the lands they confirmed their right to the portion they were already taking, and that the record would not accurately show the additional acquisition; but, so far as enabling them to take any additional amount of water is concerned, it does show they have not been able to get, as an average yield, more than two or three million gallons additional per day, since then.

MR. GREENE—Mr. Searls, you mentioned 72 million gallons:

Am I correct in suggesting that Mr. O'Shaughnessy said if they could get 20 million gallons he would approve the purchase?

MR. SEARLS—I am coming to that point in just a moment, Mr. Greene.

In other words, the total value of the lands in the first case would approximate the value of the water rights alone, and the purchase would therefore appear to be justified; while in the second case, the value of the water rights, which is the only useful part, is nothing like the total value of the land. In other words, the Company from this point of view having made a bad bargain, is now seeking to make the water rate payers bear the burden of its mistake; and this, I take it, is directly contrary to the theory of reproduction. If they expect to receive an appreciation in land value through having bought wisely, they must also expect the depreciation when they have not bought wisely; and if the circumstances are as Mr. O'Shaughnessy suggests, they certainly bought unwisely in paying such an enormous price for an additional yield of two or three million gallons daily, and should not be heard to complain if the value for rate fixing purposes is based on the value of the water rights which they thus acquire.

Counsel has sought, in his argument, to discredit Mr. O'Shaughnessy's testimony on the utility of Pleasanton lands in the same manner that he sought to discredit him on the question of the Merced utility, namely, by reference to previous reports.

In this connection I call your Honor's attention to the cross-examination of Mr. O'Shaughnessy on page 10,747 of the record, in which he supplies the reason for his inclusion of these Pleasanton ranch lands for rate-fixing purposes; and also in the report of properties to be included in the elimination sought.

"MR. McCUTCHEN—You suggested a doubt as to whether or not the company had sufficient information to warrant it in buying that land: You thought you had sufficient information in November, 1913, to warrant you in advising the city to buy it, did you not?

"A. I did not. That is why I prosecuted this investigation.

"Q. You did not intend your report to be final, then, at the time it was made?

"A. I intended it to be as near final as I could make it.

"Q. You are aware, of course, that there is nothing in the report that suggested to the Board of Supervisors that you desired to make further investigation?

"A. The Board of Supervisors demanded a report of me, and I handed it down with the very best ability I possessed, and the use of all information available.

"Q. I am not questioning that for a minute, Mr. O'Shaughnessy: I am only questioning you on these matters in view of your apparent criticism of the business judgment of the company in acquiring these lands at the time the lands were acquired. I suggest to you and I ask you whether if that was a mistake you did not make the same mistake when you made this recommendation after an investigation covering a long period?

"A. I would not call my finding a mistake.

"Q. In other words, you were quite well satisfied?

"A. With the information I had available.

"Q. Will you tell us, Mr. O'Shaughnessy, why, if it had been advisable to acquire those lands, assuming that the yield was 20 million gallons a day, it was inadvisable to acquire them if the yield was only 15 million gallons a day? . . .

"A. I said the average product was 10 million gallons a day throughout the year, but that at certain periods there might be withdrawn at the rate of 15 million gallons a day."

Again, on page 10,738 of the record, Mr. McCutchen:

"Q. It was your understanding that those lands were in use at the date of that report for the purpose of supplying water to San Francisco?

"A. It was my understanding that the company purchased them for that purpose.

"Q. And that they were actually being used for that purpose at that time?

"A. I would not say that.

"Q. When you say that you did not have all of the information at the date of this report to enable you to tell just what the yield from the lands would be, what influence did the information which you subsequently got have upon you so far as that feature of the case was concerned?

"A. It is my opinion that a lot of those lands could be safely excluded.

"Q. Suppose the yield had been twice as much at that date

as your subsequent investigation convinced you it was, would that have any influence on you in determining whether they were in use or not at that date?

"A. The quantity of the yield might have influenced me.

"Q. And that was the thing that did subsequently influence you to take that course and provide for the driving of a string of wells, was it not?

"A. It was the desirability of having some simple way of taking out whatever water was there.

"Q. In other words, to have some way of getting all the water that those lands would produce without the city buying the lands themselves?

"A. That is correct.

"Q. And you would not have thought of recommending any such arrangement as that but for the fact that there was coupled with it a right as against the company to take the quantity of water from those wells which the city wanted?

"A. The company guaranteed no quantity of water. I endeavored to get it.

"Q. I am not asking you about a guarantee. I am asking you about a right as against the company to do a certain thing.

"A. That was part of the bargain.

"Q. What has the yield or what did the yield have to do with the determination of the question whether or not those lands were then in use—and when I say 'yield' I mean the yield of those lands.

"A. Well, you might explain that question, if the yield had been nothing or practically nothing, no sane person would think of including them as being of use.

"Q. You knew what the yield was when this condemnation suit was brought?

"A. I knew roughly what the yield had been, but as I have told you, there was gross misinformation by various alleged experts as to what those gravels would produce. I believe your company was deceived as to their productiveness.

"Q. If you had known at the time that the production would not be as great as the company said it would be, would that have influenced you to find these lands were not in use at that time?

"A. There is a certain portion of those lands I would have included, where the pumping stations were.

"Q. What are these reports which you subsequently got

which convinced you that you could not get from the lands the yield which you had anticipated?

"A. Exhaustive measurements by reliable assistants.

"Q. Of your office?

"A. Of my office, as to the fluctuations of the water plane during this 823-day period."

And later on (10,741):

"Q. Now, Mr. O'Shaughnessy, is it not a fact that that change of plan came about solely and entirely as the result of negotiations between the city and the company, the city in those negotiations seeing that it had just so much money available, and that changes must be made so that it could acquire the property for that amount of money, and was not that the reason and the only reason for the change which you have suggested?

"A. No; that reason about the lack of money or the abundance of it did not influence me on an engineering problem. If I thought that it was necessary to retain all of those lands to get a volume of water out of them, I would not change a recommendation to conform with the request of any city official.

"Q. What is the fact as it developed? Did it not come about as the result of such a negotiation as that?

"MR. SEARLS—Referring to Mr. O'Shaughnessy's recommendation?

"MR. McCUTCHEN—Yes.

"Q. Wasn't there a suggestion that if the city could in some way get the right to pump all the water from underneath those lands, leaving the title to most of the lands in the company, that the purchase might be accomplished, and that it was possible that it could not be accomplished otherwise?

"A. There were such negotiations between the attorneys as to reducing the price of the lands when a question of compromise was arranged in the price by excluding those lands. When the matter was brought to my attention as to what my attitude would be on the subject, I said I would have no objection to the exclusion if the company guaranteed a certain quantity of water. Your associate counsel for the company, Mr. Olney, positively declined to guarantee any quantity of water. I wanted him to guarantee even 10 million gallons a day, but he declined to do it. There was a hiatus, an *impasse*, you might call it, between the company and the city for nearly six weeks, and then finally this alternative arrangement was made by which

those two strips, one up through the center of the valley and the other at right angles, were granted to the city to give them the means of taking out this quantity of water, at least 10 million gallons.

"Q. You say that there was an *impasse* of six weeks?

"A. Yes.

"Q. Did not that *impasse* come about solely and only on account of this situation: You said we must have those lands, and the company, on the other hand, said if you got those lands you must pay a certain price for them.

"A. I was not seeking lands, I was after water.

"Q. Well, you regarded the lands as very valuable, then, for their water?

"A. No.

"Q. Was it a matter of indifference to you whether you got them, or not?

"A. It was a matter of importance to secure the rights of the city to the water that was being supplied to it.

"Q. What you were after was the right as against those lands to do what you would have done if the city had bought the lands, was it not?

"A. What I was after was a continuous supply of water."

MR. McCUTCHEN—Mr. Searls, does it not inevitably follow from Mr. O'Shaughnessy's statement that he was asked just that thing, that is to say, as to the right to get all out of those lands that he could get if the city bought them?

MR. SEARLS—He tried to get you to guarantee as much as 10 million gallons, as he stated, and at the time he did not know what the yield of the lands was entirely; he had some subsequent reports from his assistants which led him to believe that it was very much less than it was at the time he made the original recommendation for their inclusion.

MR. McCUTCHEN—I think it is fair to suggest to you now, Mr. Searls, although we may call attention to it in the closing argument and we may not, that Mr. O'Shaughnessy claimed to have received that information or report that the lands would yield 72 million gallons a day, long before he made his report of November, 1912, to the Secretary of the Interior, in which he stated that the

yield of the Alameda sources, that is to say, the Sunol filter beds and the Pleasanton wells, was between 15 and 20 million gallons a day.

MR. GREENE—I think it was limited to 15 million gallons, Mr. McCutchen.

MR. McCUTCHEN—Well, 15 million gallons.

MR. SEARLS—I think I called attention to that. He said himself he did not believe at any time that they would yield 72 million gallons, that is, after this first information was available, but he thought he might get as much as 20 million gallons.

MR. McCUTCHEN—But he stated in his report of 1912 that the then yield of the whole system—he spoke of them as the Alameda gravels, but he stated on cross-examination that by Alameda gravels he meant Sunol and Pleasanton—was 15 million gallons a day.

MR. SEARLS—I will continue with this quotation:

“Q. And you were going to get it from those lands?

“A. Not in a satisfactory manner with the conditions imposed by the company.

“Q. By this arrangement which you say you suggested you were in effect, as you understood it, for all water production purposes, to step into the shoes of the company as the owner of those lands, were you not?

“A. Not entirely, because the company reserved the fee to the lands, and also reserved the right to withdraw water for irrigation purposes.

“Q. The irrigation purposes of the particular land?

“A. Yes.

“Q. Those waters were to be used on those lands and not conveyed elsewhere?

“A. And not conveyed elsewhere.”

And further on (10,743):

“Q. Now, if, according to your view, Mr. O'Shaughnessy, those lands were not in use when you made that report on the 19th of November, 1913, or, I should say, if you found they were not in use at some subsequent time, why did you want them at all?

“A. Because I was influenced by the belief that there might be some truth in some of the statements and allegations made by the company's experts as to the volume of water there was

available. If there were 40 million or 50 million gallons of water up there, or 72 million gallons a day, as one of your experts claimed, I would want every acre in that valley.

"Q. Did you believe at the time you made this report that you could take 72 million gallons a day out of that reservoir?

"A. I thought that the experts were exaggerating a very great deal, but I did not think they went to the extent they did.

"Q. How much did you think could be taken out at that time?

"A. Well, I thought we could take out possibly 20 million gallons a day."

Again (10,744):

"Q. You said that after all this investigation had been made and you had received reports of your assistants, you concluded that the output of that property would be 15 million gallons a day?

"A. No.

"Q. What did you conclude?

"A. I concluded it would be just about the amount that I wanted the company to guarantee.

"Q. What was that?

"A. About 10 million gallons a day.

"Q. However, the arrangement which you made reserved the right to take 15 million, did it not, as against the lands?

"A. Yes, it did.

"Q. When you made that reservation did you think that you would not get 15 million gallons a day?

"A. Well, I thought for short periods of the year we could withdraw at the rate of 15 million or 16 million, but not for a continuous supply."

And again (10,745):

"Q. Suppose, Mr. O'Shaughnessy, that you had been the engineer for the company at that time, and had been concerned with preserving and insuring a water supply for San Francisco, do you think you would have commended the purchase of those properties?

"A. I think I would have gone on with another development.

"Q. With litigation pending against the company?

"A. All the more reason.

"Q. That is, you would have taken time to develop and allowed the litigation to go to trial in the meantime?

"A. I would have built the Calaveras dam.

"Q. You would not have thought to avail of this particular source, then?

"A. No.

"Q. You would have allowed that to go by the board, so to speak, and have gone to the Calaveras dam?

"A. I believe that is far more expensive development than the Calaveras dam."

There are many excerpts from the testimony of this witness on the Pleasanton situation which I could read to your Honor, and which absolutely controvert the conclusion which counsel has sought to draw from his testimony. But I shall not take your time and refer to the entire testimony, as I believe only by reading the entire testimony can you get a fair impression of what the witness' point of view was—the water-supply point of view.

One thing seems very certain from all the testimony, that the only utility these lands have, from a water-supply point of view, is for the yield of the water from the underlying gravels.

Mr. Lee's showing that the total dependable yield has not at the present time exceeded 7 million gallons per day (10,068) has not been controverted by the testimony of any other witness, although the estimates of some of the complainant's witnesses as to the possible yield were much higher.

This means that the company paid for the right to take this 2 or 3 million gallons per day additional—and by "additional" I mean in addition to what they were getting at the date of the purchase—by buying the land at a price of something over a million and a half dollars, and they then in their valuation take the cost of the land and add to that the value of the water rights at the rate of \$100,000 per million gallons daily, including, of course, the yield from this source. They try to get around this apparent duplication by saying that this is the value of the right to fluctuate the water plane. But if they have to acquire the right to fluctuate the water plane after they have got their water right, before they can use it, clearly the water right

is not worth very much without this privilege attached. None of the plaintiff's witnesses have made any distinction in that respect.

Then they tried to call it an underground reservoir, and justify its inclusion, in addition to their water-right values, on the theory that it represents storage. But they did not need to buy the lands to get the storage feature—they had that long before they ever purchased it. It was a part of the topography of the country of which no one could deprive them any more than they could of the rain which fell from the heavens.

In cross-examining complainant's witnesses who testified as to the value of water rights, I took pains to ask each of them whether they considered they were valuing a complete water right, good as against everybody. And they testified that they did. And then they went out to lunch with counsel, and came back and said that they did not mean by that to include the right as against the overlying owners at Pleasanton. It seems to me that there is a very obvious duplication of value here. The only value that these lands have to the complainant as a water-supply proposition is the value of the right, which their ownership gives the company, to divert water from beneath them, which it could not otherwise divert. That right has been valued by Mr. Lee for the defendants, and the amount thereof included in our total appraisal. The complainant is thus compensated for every atom of damage which results to the agricultural value of those lands, and the division of the amount of water which has been taken. And, as Mr. O'Shaughnessy testified, and as Mr. Lee testified, they have been taking more than they are legally entitled to until they make settlements with the land owners in the East in the Livermore Valley. There is no possible justification, either in law or in equity, for the inclusion of the agricultural value of those lands, which is the value that has been included in complainant's appraisal, as a capital charge upon which the San Francisco rate-payers must pay a return.

Upon the findings by your Honor that these lands are neither used or useful for water supply purposes, the company will doubtless make haste to sell them with a reservation of water rights. The consumer will be relieved of the unjust burden, and the company will

have made a profit on its real estate investment. Such an outlook would seem to be most equitable for all the parties concerned.

MR. McCUTCHEN—How could we do that, Mr. Searls, if we disposed of them at the valuations put on them by your witnesses?

MR. SEARLS—Reserve the water rights.

MR. McCUTCHEN—Your suggestion was that we could reap a handsome profit on the sale of the lands.

MR. SEARLS—Presumably they have been advancing, even since the date of the appraisals, if your conclusions are right.

r. Citations.

I want to read to your Honor a few decisions which cover the questions raised by the city's claims for exclusions at Merced and Pleasanton. The principle there is practically the same in both cases—that is, the exclusion of land which we submit has never been in use, is not now in use and never will be useful; that the amount paid is very much in excess of the value of the lands for water supply purposes.

The fundamental principle upon which our right to contend for these exclusions rests is set forth in *Smyth v. Ames*, 169 U. S., 466, and at page 543, the Supreme Court said:

“We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property *being used by it*, for the convenience of the public.”

Again, in *San Diego Land Co. v. National City*, 174 U. S., 739, at page 754, it was said:

“What the company is entitled to demand in order that it may have just compensation is a fair return upon the reasonable value of the property *at the time it is being used for the public.*”

In *Water District v. Maine Water Co.*, 59 Atlantic, 539, Judge Savage said:

“It is true that the fair value of the property used is the basis of calculation as to reasonableness of rates, but, as was

pointed out in the Waterville case, this is not the only element of calculation. There are others; as, for instance, the risks of the incipient enterprise on the one hand, *and whether all the property used is reasonably necessary to the service, and whether as a structure it is unreasonably expensive, on the other.* For a simple illustration, suppose that a 500 horse-power engine was used for pumping when a 100 horse-power engine would do as well. As property to be fairly valued, the large engine might be more valuable than the smaller one, yet it could not be said that it would be reasonable to compel the public to pay rates based upon the value of the unnecessarily expensive engine."

In the Spring Valley case, reported in 165 Federal, that being the decision in the 1908 case on the preliminary injunction, Judge Farrington said:

"The corollary to this, if the company sees fit to use, for the mere catchment of water, lands which are much more valuable for other purposes, it is unreasonable in fixing rates to appraise such lands for more than they are worth as watershed areas.

Capital City Gas Light Co. v. Des Moines (C. C.), 72 Fed., 829, 844;

Boise City I. & L. Co. v. Clark, 131 Fed., 415, 65 C. C. A., 399;

Cons. Gas Co. v. New York (C. C.), 157, Fed., 849, 854;

Beale & Wyman on R. R. Rate Reg., Secs. 343, 344, 462."

MR. GREENE—What specific application do you ask the Court to make of that principle in this case, Mr. Searls?

MR. SEARLS—Simply this: You have made an investment at Pleasanton under the guise of buying water rights which represents lands of very great agricultural value and water rights of very much less value and you are seeking to charge the rate-payer with a return on the entire investment; it is not a condition such as you would find on the Peninsula, for instance, where you have bought lands that have conceivably a high value for residential purposes; and devoted it exclusively to water-supply uses,—that is not the situation at Pleasanton. You have a perfectly good agricultural investment there that you can use in any way you see fit, sell the

land, rent it or develop its agricultural possibilities without in any way interfering with its water supply uses. The two are entirely separate and distinct according to my way of thinking. It is a question of the utility of that part of your investment.

THE MASTER—In that citation Judge Farrington was speaking of the Arroyo Valle Reservoir, was he?

MR. SEARLS—Yes, your Honor. It is the same principle, it seems to me. The company claims the inclusion of a reservoir value on these Alameda reservoirs; they are not used for reservoir purposes, they have not any value for those purposes to the rate-payers in San Francisco. When I come to discuss that branch of the case I will contend that there is legal ground for the exclusion of the reservoir value under any consideration in Alameda county.

MR. GREENE—The reason I asked the question was because I understood your contention to be that the property was not used at all; and if that contention is sound it does not require the application of any such principle as that which you have just been reading from; in other words, I did not understand that your argument was based on a partial use of property; I thought it was all eliminated so far as the real estate went.

MR. SEARLS—So far as Pleasanton is concerned I cannot eliminate the fact that there is water underneath the Pleasanton lands, and that when you buy those lands you have a right as against the surface to use the water, and that the right to use that water as against the owner of the surface is of some value; that is the value we have attempted to include in this proceeding. We do not contend all of the Pleasanton investment should be excluded but we ask for the exclusion of that part which has clearly no relation to the water supply value. As long as the company has contended that the investment is to be considered as a whole and inseparable I cite the decision of Judge Farrington to show that it is grossly excessive for the purpose for which they state it was destined.

Again, in the Farrington decision, at page 158, the Court said:

“The value of the property is the value of its uses. If but half complainant's land is used, a return on that half only should be exacted. The value of that half would be the reasonable value

of the property in use. If complainant's land is susceptible of two equally advantageous uses, each of which may be exercised without detriment to the other, and only one of them is taken for the public, half the value of the property again would be the reasonable value of property in use. When watershed lands are used for grain raising, under proper restrictions, neither use materially interferes with the other. So, also, lands may be employed at the same time both for water production and water storage. Neither use excludes the other. . . . The justice of this is obvious If the rule were otherwise, the public might be called on to bear the burden of the company's investments, in addition to paying a reasonable price for the company's service. The courts are always open. Such lands can always be condemned, and reservoirs constructed and connected with the system within a reasonably limited time before they are needed."

In *Consolidated Gas Co. v. City of New York*, 157 Fed., 849-857, Judge Hough excluded from the valuation the present worth of leased, vacant and unimproved lands to the amount of more than \$2,000,000 because they were not then in use.

In the case of *Van Dyke v. Geary*, 218 Fed., 111, at page 123, it is said:

"It is complained that the Corporation Commission failed to include in the property of said water system, or consider, or allow, a large tract of land containing about 189 acres. It is true that the Commission did not allow anything for this property, and their reasons therefor are stated in their opinion, as follows: 'The contention of the company is that the hills forming the banks of the main stream, and small tributary gulches, should be included in the valuation on the ground that such hills divert water into the main channel was not considered by this Commission. No effort of the company could prevent water being so diverted, and it seems that the snow banks of Pinal Mountains, or the clouds, could attain the same elements of value. The company offered no direct evidence as to the value of real estate, and the testimony of the witness Mackay appears not to have been controverted.'"

"The company alleges that this tract of land was of the value of more than \$38,400. In the affidavits submitted by complainants the same is valued at \$73,720. It will be observed from an examination of these affidavits, especially those of F.

L. Fletcher and A. Reid, both of whom are dealers in real estate, and both of whom fixed the value at exactly the same figure, that they did not place a value upon this land for water purposes, or show how or in what manner it was worth \$73,720 when used in connection with said water system. They simply valued the land itself, regardless of the use to which it had been or might be put; in other words, they gave the total value of the land, and in arriving at that value they stated:

"I arrived at my estimate of said valuation and base the same upon the sale of real estate of the same or similar character in the vicinity of said land."

"So far as the records show, this land might be underlaid with valuable mineral deposits, or it might be valuable for residential or other purposes, and it seems absurd to ask that they be allowed to require the consumers of water in the town site of Miami to pay a return upon the actual value of this land, independent of its value when used as a part of, or in connection with, said water system, and we do not find anything in the record which shows its value when so used, if it has ever been so used. It was stated in argument, and not denied, that the title to the land was acquired under the mineral laws of the United States. Suppose the complainants had gone back to the top of the Pinal Mountains, and acquired twice or thrice the area now owned by them; would it be contended that because these vast areas form a part of the watershed, and the water finds its way ultimately into the complainant's wells, that an allowance should be made for all such property? We think not, and believe that the Corporation Commission did not err when it refused to make an allowance for this property."

It seems to me that this last decision is very pertinent to the situation at Pleasanton.

There are one or two Commission decisions to which I might refer your Honor briefly:

In the San Jose Telephone case, reported in 3 Cal. Comm. Reports, 720, at 726, the Commission said:

"The company, as heretofore pointed out, places a value of \$26,892.00 on its old exchange building which is now no longer in use. Counsel for defendant says that this building is admittedly non-operative property, but that it has not been able to dispose of it at a reasonable figure up to the present time. It is urged that

inasmuch as the company expects to sell this building at the earliest opportunity that it should be allowed to earn on the money invested therein and failure to permit such earning will in effect penalize the company for its willingness to enlarge its plant so as to provide facilities for serving the public adequately. I do not believe there is much force in this argument. While I do not question the good faith of the company's statement that it intends to sell this property as soon as possible, yet the Commission can not admit that non-operative property adds to the value of the property devoted to public use. Such an admission would make all kinds of abuses possible and I do not believe either the law or equity requires an allowance for such an item and shall eliminate it from further consideration."

The Oregon Public Service Commission in 1915 gave a decision in *Bend v. Bend Water, Light & Power Co.*, in Pub. Ut. Reports for 1915, F., page 917:

"Over and above the plant, reasonably used and useful in the production of electricity, the defendant has installed and owns other physical electric production equipment and land, to reproduce which, in normal new and usable condition, would have required on December 31, 1914, the expenditure of approximately \$47,500. Such electric production equipment and land, although its construction and acquisition was apparently warranted by good engineering practice and business management, was not justified in the realization of expectations, and the Commission finds is not now reasonably used and useful to the community served. The amount of capital represented thereby should be carried into account 105 of the Commission's uniform classification of accounts ('property devoted to other operations'), there to remain until such time as the defendant shall show the Commission that such property, in whole or in part, is devoted to the accomplishment of the principal purposes of the business of the utility, at which time the Commission will determine, and by its order fix, the amount which shall be credited to such account which shall be charged into the fixed capital account, and make such other and further order as may be proper in the premises."

There is another suggestion contained in that decision as a possible solution of this question that the company should be re-

quired to hold this Pleasanton investment in suspense so to speak so far as the court is concerned until such time as they can show by the actual water production from that source that the total amount of money was justified from a water supply point of view.

MR. McCUTCHEN—How could we do that as for the past year?

MR. SEARLS—You could not. I was simply suggesting that as a possible future solution. If you can get anything like the water out of those gravels that your engineers have said it may well be that at some future date when you complete your legal title to it, that the gross amount of the investment could be considered, but as it stands now, although you have the right to take certain amounts of water as against the ownership of that land, if I may use that expression, you have not completed it in such a way, either by demonstration of the possible content of the gravels or of your legal right to take more than you have taken. Therefore the rate-payer should not be required to pay a return on the investment until that demonstration is made.

MR. McCUTCHEN—I would like to ask you a question, if I may: Would you say that we could dispose of those Pleasanton lands today absolutely?

MR. SEARLS—You mean without any reservation of water?

MR. McCUTCHEN—Yes.

MR. SEARLS—I don't think that you could without reserving your water rights, but I don't think that the reservation of the water rights would affect the price materially at which you could dispose of them. There is water enough there for the irrigation of the lands and for the Spring Valley Water Company besides, apparently. The person who bought the lands would want them for their agricultural availability.

In *Monahan v. Pacific Gas & Elec. Co.*, Pub. Util. Reports, 1916 B, the California Railroad Commission, at page 613, said:

“On the rehearing the defendant offered evidence to show that the Commission erred in the Antioch case in deducting certain lands from the hydroelectric system on the ground that these lands were non-operative. The testimony submitted by the defendant on the rehearing shows conclusively that the lands

thus deducted being proposed reservoir sites, timber lands, or excessive purchases in connection with rights-of-way, are non-operative, as found by the Commission in the Antioch case, and that they should be deducted from the operative property as was done in that case."

These Commission decisions are of course not binding authority upon your Honor, but they are of interest as showing the tendency of modern regulatory bodies.

s. Stone & Nusbaumer Tracts.

We have also excluded portions of the Stone & Nusbaumer Tracts lying to the north of Alameda Creek. These tracts rise abruptly from the Laguna Creek watershed. They furnish neither protection nor run-off for any part of the Alameda supply, and their only value lies in the riparian rights which are attached to the Alameda Creek boundaries.

These rights have been appraised by Mr. Lee on a reasonable basis and no justification appears for the inclusion of the residual real estate valuation. The portions of those tracts above the Niles Canyon Road could undoubtedly be sold without any detriment to the water supply, or without detriment to the real estate value.

t. Arroyo Valle Lands—Utility.

We have also excluded all the Arroyo Valle lands, including the two outlying tracts on the lower part of the creek. From anything that appears in the record, the date at which the storage dam will be built in the Arroyo Valle is so far distant as to fail to justify the inclusion of these lands in the valuation of the present time. They were excluded by Judge Farrington in the last case, and no additional justification appears for their inclusion in this case. The language which I have previously quoted from the learned Judge's decision in the 1908 preliminary injunction appears to cover the situation as well as the language of the other authorities cited. It may have been good judgment for the company to acquire these lands for distant future use, but it must wait until the land is actually put into use before being entitled to claim a return, and will be then entitled to have the land included in the valuation at its

full market value. Ownership of these lands does not at present insure their security of title or purity of supply, the Pleasanton gravels affording the latter protection. The record shows that the Bay Cities Water Company owns reservoir sites in Arroyo Valle Creek above the Spring Valley properties. The Spring Valley holdings cover only a portion of the watershed, and if the water rights be valued as they have been by our witnesses, no reason appears for including lands also.

I merely mention that fact of the Bay Cities ownership as showing that it might be possible that the Arroyo Valle reservoir would never be available to the company. I don't know that it does demonstrate it but it indicates a possibility.

u. San Antonio Lands—Utility.

The same line of reasoning applies to San Antonio lands, which we excluded. It does not appear that any use will be made of these lands for many years to come. The water from San Antonio Creek filters through the Sunol gravels, and full value is allowed for water rights.

v. Upper Alameda Lands.

The same line of reasoning demands the exclusion of the tracts on the Upper Alameda Creek. This creek joins Calaveras Creek, below the proposed Calaveras Dam Site, and no use can be made of its waters until a dam is built across the Upper Alameda Creek, and the water diverted through tunnel or conduit into Calaveras reservoir. This it does not appear will be done for many years. The water rights on this stream have been valued at Sunol, and the water from this stream filters through Sunol gravels. We submit that these lands should be excluded.

w. Calaveras Lands and Structures—Utility.

There remain to be discussed the Calaveras lands and structures, both above and below the Calaveras dam site. While this dam is at present under construction, and storage will probably take place within another year, this condition did not exist during the years in controversy. By that I mean the completed condition of the struc-

ture. Mr. Metcalf's study of expenditures on the Calaveras properties (Ex. 194) show that the expenditures were commenced as far back as 1875, for test borings at the dam site. Sporadic beginnings and more serious work thereon have been made from time to time ever since. Nothing definite seems to have been undertaken in the way of actual construction until the year 1913 (10,383) when the present dam was commenced. There is some conflicting testimony as to the progress which has been made on the work since that date even. Some of these Calaveras lands were the first lands ever purchased by the company in Alameda County, purchases going back to 1875. No diversion was ever made from Alameda County until 1888, and with the exception of the pumping at Pleasanton, nothing but the free surface flow has been taken since that date. In other words, no storage has ever been attempted. The company has from time to time during the past 40 years been buying land along the Calaveras Creek watershed, until its holdings are now practically complete. That is, they are practically complete to the upper reaches of the Calaveras Valley. They do not own the lands beyond that point.

There is, perhaps, more of a question with respect to the date at which this property should be considered used and useful for rate fixing purposes than in the case of any other properties which we have excluded. These lands were included in Judge Farrington's decision, but their reservoir value was excluded. I am inclined to think that the learned judge erred in not excluding their watershed valuation also, although the record in that case was far from being clear as to the lands and division of the various lands, or their particular utility. The city has allowed full value for all the water rights on Calaveras Creek, and has included all the lands which comprise the Sunol gravel beds and adjoining watershed, as will be seen from the examination of Mr. O'Shaughnessy's exhibit No. 206.

The only question that remains is whether, looking back to the years in litigation, the date at which the Calaveras reservoir will actually be in use concerning the San Francisco public was sufficiently close to justify the inclusion of these land and structural values at that time. The company cannot claim any particular equitable con-

sideration in this matter from the history of the transaction, as it is more or less apparent that they bought the lands in 1875 to forestall competition, paid a million dollars for them, together with certain water rights, and have held them, together with subsequent acquisitions, ever since. I hardly think that any rule would justify the inclusion of these lands for rate making purposes in 1875, and it is difficult to see just when they shall go into use. Perhaps the best solution is to wait until they do go into use, if they ever do.

In that connection I was reminded by reading the discussions at the Commonwealth Club the other day—not reminded exactly but a suggestion came to my mind—that possibly these lands never will be exclusively used for San Francisco. There was quite a discussion before the club and I think Mr. Schussler suggested that that might be an available source for the East Bay cities which are admittedly in need of water. Now, if there is a possibility that the company is going to divert its Calaveras water or its San Antonio water in part at least to supply the East Bay cities, then clearly the San Francisco rate-payers should not be compelled to pay a return on the entire investment until the company settles definitely whom it is going to serve. That was not a topic upon which any evidence could be introduced in the nature of things because it is purely a matter of future speculation; on the other hand, until the company gives some more definite assurances than it has to date by acts of construction as to where this flood water of the Calaveras and the Alameda creeks is going I do not know how we can determine that it is going to San Francisco. Of course, they have appropriated and dedicated to the use of the San Francisco water consumers the normal flow of Alameda Creek to the extent that they can take it in their present pipe line, but that is not saying that they could not take the Calaveras dam and the reservoir land back of it and store the flood waters and divert at least a portion of them to the East Bay cities. In that case it is very clear that the land values and the value of additional water rights which are as yet undeveloped should in part be charged against others than the San Francisco rate-payers.

MR. McCUTCHEN—You would not say that the company

could convert Calaveras into a reservoir for impounding water and use that water for supplying Oakland and the other East Bay cities if San Francisco needed the water?

MR. SEARLS—I don't know why you could not; at least I don't know how we could stop you. I take it there is no dedication to a public use until the water is put to that use.

MR. McCUTCHEN—I supposed that would necessarily be your answer from the argument you have made, but do you think San Francisco would sit by and permit us to do that?

MR. SEARLS—I certainly do not. I think we would be raising a very vigorous objection, but whether we could stop you, or not, is another question entirely. I understand it is a matter of fact, Mr. McCutchen, that your company owns the right-of-way along the Western Pacific track into Oakland, showing you might have had some intention of that sort, although that fact is not in the record.

MR. McCUTCHEN—Inasmuch as you have suggested it, Mr. Searls, that is quite true, but it would not follow at all from that, would it, that the demand in San Francisco would have to first be satisfied?

MR. SEARLS—I don't know as to that. I don't know that the mere acquisition of this land by your company, which you have never yet put to use in supplying the public of San Francisco, will constitute a dedication of that use. If you had once dedicated it to that use and were then seeking to divert part of the water, or to use the properties which you had clearly dedicated to that use for supplying other cities or communities, there might be something in your suggestion.

If there is any uncertainty in your Honor's mind on this point, I think that you will find that we have covered it in another way. You will find on page 10,836-7 of Mr. Dillman's testimony the following:

"As an estimated valuation of whatever elements of protection to the purity or the security of water supply, the ownership of large areas of watershed lands in Alameda County, the Merced Ranch, and the Pleasanton Ranch lands, may be found to afford the streams or water rights as well as the stragetic

advantage, if any exists, of owning the dam-sites at the various reservoirs, the sum of \$474,648."

He explains the odd figures as making up a total.

". . . In making that allowance, I considered that it would not be unreasonable to allow for a strip of land protected by fencing along the strip through lands of the Spring Valley Water Company, or other lands which might be appurtenant, and while all this water gets filtration, and probably needs filtration at Sunol, or through the well production at Pleasanton, this is certainly ample to allow for reasonable protection, should it be considered necessary. That protection is not necessary now, but possibly would have been necessary now, or in the past, had the lands been in alien ownership. It may be necessary in the future, of course."

On pages 10,953-54 Mr. Dillman explains his use of the words "reservoir sites" in the above testimony as referring to "dam-sites," thus clearing any ambiguity in the record as to what is meant there.

With respect to those watershed acquisitions Mr. Dillman has to say, on page 10,923-24 of the record, as follows:

"MR. McCUTCHEN—Q. Mr. Dillman, you have stated that certain lands in Alameda County were out of use. You have spoken particularly of the lands along streams. Do you know in a general way what lands the company has acquired in Alameda County?

"A. Yes.

"Q. Do you know that it acquired lands along Alameda Creek from Sunol up to Calaveras and above Calaveras?

"A. Yes.

"Q. You have looked into this problem sufficiently to make yourself quite familiar with the needs of San Francisco for water supply, and its dependence upon the Spring Valley Water Company supply, haven't you?

"A. I don't know that I am entirely familiar.

"Q. I didn't say entirely familiar; I say generally familiar.

"A. I think so.

"Q. Do you think it was bad judgment for the company to acquire these properties for a water supply?

"A. It was—

"Q. (Intg) Answer the question 'Yes' or 'No' and then make your explanation.

"A. It was—

"Q. I insist upon the answer, 'Yes' or 'No' and then you can make your explanation.

"A. The question cannot be answered 'Yes' or 'No,' in the way that you desire; it was probably good judgment to acquire the lands along the creeks for some distance above Sunol, and they would be considered necessary by me, but it was not good judgment, and it was unnecessary to acquire a large area of hill land away from the creek for the San Francisco Water supply.

"Q. Then you think there was no need for the acquisition of those lands, and that their acquisition was the result of bad judgment?

"A. Their acquisition might have been the result of very good judgment.

"Q. For water supply purposes?

"A. But it is not appurtenant to the present water supply of San Francisco, because it neither adds to the production nor decreases pollution.

"Q. Well, now, when you speak of watershed lands on Arroyo Valle and San Antonio and Alameda and Calaveras Creek, do you include the lands that are susceptible of use as reservoir sites?

"A. I do not; but, considering that this is a matter of opinion, I have added to my estimate some \$400,000, part of which could be directed to the acquisition of those reservoir sites.

"Q. Did you intend to cover these reservoir sites in that way?

"A. If it was desirable to do it; I wished to add enough in this rating base to cover their acquisition.

"Q. Did you have them in mind particularly when you put down that figure of \$474,000?

"A. No."

The words "reservoir sites" here is the language to which the witness subsequently refers when he speaks of dam sites.

"Q. How do you know that that figure would cover those reservoir lands?

"A. I don't know that they would be considered necessary at all.

"Q. I do not think I understand you: as I understand you to say in the one case, you said you intended that that \$474,000 should or might cover these reservoir lands.

"A. In my estimate, I have considered that the acquisition of these reservoir sites was entirely unnecessary, but that is a matter of opinion, and in making this allowance, I had in mind two things, the lands along the creek for the protection from pollution and the purchase of reservoir sites should they be considered necessary by the Master.

"Q. Is it your opinion that it was bad judgment on the part of the water company to acquire the Calaveras reservoir site for water purposes?

"A. No.

"Q. You think it was good judgment?

"A. Yes.

"Q. Is the same true of San Antonio?

"A. No.

"Q. Have you made any allowance then for Calaveras reservoir lands in your summing up?

"A. No.

"Q. But you do think that the company ought to have bought those lands?

"A. Looking for the future, yes.

"Q. You did not make any allowance, then, for Calaveras reservoir values?

"A. No.

"Q. How much have you allowed for land values along the creeks where you say the company ought to have acquired a strip?

"A. No specific sum.

"Q. I suppose you appreciate that that would have been carving the hearts out of these ownerships, so to speak, don't you?

"A. It would undoubtedly have cost more per acre to acquire a strip through the land than acquire the whole acreage, if that is what you mean.

"Q. But you didn't know what that was, and you didn't make any effort to determine that?

"A. I am not barring Calaveras from valuation in this case.

"Q. Where have you allowed for it?

"A. I have not allowed for it in this rating base at all,

because it does not belong in this rating base; this rating base is a rating base for years prior to the construction of Calaveras storage. Now, when Calaveras storage is made, that will all come into the rating base, and it should come in with the values of lands appreciated up to the time it comes into use, and the structures will come into use in the same way, with interest on construction and overhead up to the time of use; in this exclusion the rating base is not an exclusion from the value of the Spring Valley Water Company; this rating base is not the total value of the Spring Valley Water Company; they own a lot of property that has not been put into this rating base.

"Q. That was wisely acquired for water production purposes?

"A. Yes, some of it; the Calaveras being very pertinent, for one part."

That was all the cross-examination on Mr. Dillman's acquisitions of these water-shed lands.

On the following day, being recalled for re-direct examination, I asked him, at page 10,953, as follows:

"Q. Mr. Dillman, yesterday on cross-examination, pages 10,925-26, speaking of your allowance of \$474,000 as a safety factor to cover any findings his Honor might make as to the use of the Calaveras and Arroyo Valle and other lands for protective purposes, you stated on your direct testimony that it would also cover the strategic advantage of acquiring the dam site. Now, on cross-examination you used the words 'reservoir sites.' Will you state what your understanding of the term 'reservoir sites' was?

"A. In all those cases I think I was careless in the use of the term. When I made use of the words 'reservoir sites' in answer to Mr. McCutchen, I had in mind the dam sites. The possession of dam sites is of strategic importance, and they are frequently acquired along before the construction of dams, and the utilization of reservoir sites, and their possession puts the utility owning them in a position to condemn areas for flooding purposes which are quite different from possession of dam sites themselves. The idea I had in mind in that cross-examination was the possession of dam sites which are very small in area compared to the reservoir sites flooded, and not the flooded reservoir sites.

CROSS-EXAMINATION.

"MR. GREENE—Q. Then, Mr. Dillman, your \$474,000 was intended only to cover dam sites and not to cover any allowance for either of the three reservoirs?

"A. I had no thought of lands for flooding purposes at all. The \$474,000 is the segregation made to cover the protection along the stream and the possession of the dam sites; the possession of a dam site is the same as the possession of a pass by a railroad; possession of a dam site gives them control of the situation; the possession of the land for flooding purposes is entirely different.

"Q. I think you already have stated it, but I think it should be stated again, that you did not make any attempt at a segregation either as to the width of land bordering on the streams or as to any specific amount that would be involved on the basis of any of the appraisals?

"A. No.

"Q. Simply an arbitrary allowance?

"A. That is all."

I think it unnecessary to read any further there; the rest of the discussion is not especially pertinent.

Mr. Dillman's allowance seems to me an absolutely equitable way of treating the question. The rate-payer is protected against the payment of return on a large investment which is of no benefit to him, and on which the company will be entitled to earn on the basis of the appreciated value when the property does finally come into use. In other words, I believe that if your Honor follows this line of reasoning, you will be doing exact justice to all parties in interest. And if the company is to be rewarded for buying its properties years ahead of the date at which they are to be of use, they will obtain their reward in the shape of the increment in value thereof at the date at which they come into use. That value will necessarily be much the same as the company would reasonably pay for them if they had not purchased them prior to that date.

Now, with respect to the type of lands which are now included in the excluded watershed areas I want to refer to the

language of Judge Farrington as used by him in his decision on the application for a temporary injunction, 165 Federal, 667, reading at page 697:

"The valuation put on this property by Mr. Schussler, like that alleged in the bill, is open to the objection that it includes a large amount of property not now in use. It is unnecessary to attempt a segregation of such property. Complainant alleges its present value to be \$7,500,000; that it 'cost hundreds of thousands of dollars, and is now worth millions.' It is stated in the bill that it was purchased for 'reasonably immediate' use, but as to when that will be the record is silent, except as it may be inferred from the fact that the present daily consumption is 31,000,000 gallons, the present daily capacity 35,000,000, and it is alleged with additional dams and aqueducts the plant will be capable of supplying water for more than 2,000,000 people. It is not just to compel consumers to pay for more than they receive, or to pay complainant an income on property which is not actually being used in gathering and furnishing water. If in this case the company in anticipation of the growth of the city and its future needs, acquired property for future use at a cost of hundreds of thousands of dollars which is now worth millions, it has acted wisely, but it should be satisfied with the goodness of its bargain and the enhanced value of its property, without asking additional gratuities from its customers in the way of higher rates. When the property does come into necessary service, the company is entitled to have it credited at its then fair and reasonable value for rate-fixing purposes. 'What the company is entitled to demand, that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public.' *San Diego Land & T. Co. v. National Ctiy*, 174 U. S., 739, 757, 19 Sup. Ct., 804, 811, 43 L. Ed., 1154."

—to which I have already alluded.

In the final decision in the 1903 case, reported in 192 Federal, 137, at page 145, Judge Farrington said:

"The most important fact to be determined is the value of the property. The value to be ascertained is the value at the time of the inquiry only that property is to be considered

which was then used and useful in supplying San Francisco with water."

At page 170 the court enters upon an extensive review of the property of the Spring Valley Water Company out of use, itemizing each portion and the costs thereof, and at page 155 the court said:

"San Francisco should pay what is reasonable for the service rendered. It should pay for what it receives; it should pay for no more, and no less. It is unreasonable to require payment for a service which is neither rendered nor received. It is equally unreasonable that the company should expect payment for water which it does not deliver, or for the use of property which was neither used nor useful in producing, gathering, storing, protecting, or distributing the water which was delivered to the people of San Francisco between June 30, 1903, and July 1, 1906, the period to which our inquiry relates. As to this there is and can be no dispute.

"The average daily consumption is about 33,500,000 gallons; the daily capacity of complainant's plant is 35,000,000 gallons; but it is alleged that with additional dams and aqueducts complainant's plant will be capable of supplying San Francisco with more than 110,000,000 gallons per day. In other words, the plant is sufficient, with reasonable development, to supply the needs of San Francisco when it has a population of 2,000,000.

"The company has looked ahead for 50 years; it has invested wisely and judiciously; it has a great property; but it does not necessarily follow that the water rates in question are confiscatory because they fail to yield an income of 7, or 6, or even 5 per cent. on the full value of this property."

A few pages further on, referring to the exact subdivisions under discussion, the court says:

"In this case the company purchased the Calaveras, the San Antonio, and the Arroyo Valle reservoir lands, and devoted them to public service years in advance of any possible necessity for the construction of reservoirs thereon to meet reasonable demands of San Francisco.

"My attention has been called to no law which could have been successfully invoked against complainant, had it con-

structed a reservoir on the Calaveras site in 1888, and thereafter sold the surplus product above what was being sent to San Francisco to other water users, during the fiscal years 1903-04, 1904-05, and 1905-06. Had the company pursued such a course, the propriety and justice of an apportionment of the total value of the lands as between the two uses would be apparent. . . .

"The justice of this is obvious. . . . If the rule were otherwise, the public might be called on to bear the burden of the company's investments, in addition to paying a reasonable price for the company's service. The courts are always open. Such lands can always be condemned, and reservoirs constructed and connected with the system, within a reasonably limited time before they are needed. . . .

"I cannot recede from the position taken in the 1908 case: if the company voluntarily devotes to the mere catchment of water lands which are much more valuable for other purposes, it is unreasonable, in fixing rates, to appraise such lands for more than they are worth in water-shed areas. *Spring Valley Water Co. v. San Francisco (C. C.)*, 165 Fed., 667, 698.

"True, these lands have appreciated somewhat; but there is no evidence that they have been wanted for other uses more valuable than the present, or that San Francisco has any present need of them for reservoir purposes. Their enhanced value, if any, is a prospective value, which comes in anticipation of the fact that sometime in the more or less distant future they will be needed for reservoirs, or for some other utility."

In *Southern Pacific Co. v. Bartine*, 170 Fed., 725-726, the court said, at page 767:

"If a railroad is built into a new, sparsely settled territory with a view of serving a large future population and developing business, the Constitution does not require the few people and the small business of the present time to pay rates which will yield an income equal to the full return to be gathered when the country is populated and business developed to the full capacity of the road."

In the case of *Pottee v. Brooklyn Water Company*, the Maryland Public Service Commission rendered a recent decision, in 1915, reported in *Public Utilities Reports*, 1915-A, at page 46:

"Suffice it to say that we think the sum of \$150,000, upon which this estimate of a proper return is based, is too high, especially when we consider that in the construction of this plant to Brooklyn the respondent provided a plant sufficiently large not only to take care of the present prospective customers in that territory, but also all customers that might be added by the future development and improvement of the property in and around Brooklyn for a number of years to come. In doing this, the apparatus at its pumping station was materially enlarged, and its mains were run through certain sections in Brooklyn where the property is unimproved, but which the defendant hoped would be improved in the future. This additional outlay the defendant preferred to make, and perhaps wisely so, rather than increase the capacity of the plant as new demands were made upon it; but certainly the present users cannot be expected to pay a rate sufficiently high to yield a fair return on the money invested in excess of the amount necessary to properly provide for the present consumption. If the company elects to make this outlay now, rather than wait until there is a demand for it, then the company, and not the users, should stand the interest on this amount."

I think that decision goes the limit, so to speak, in refusing the company a return on a part of its structural system, particularly its distributing system which had been laid to accommodate future development; but between that and the point which would entitle the company to buy lands destined for use, if at all many years hence, there is certainly a wide divergence and a wide opportunity for application of the rule of reason.

That concludes my discussion of the real estate properties except so far as reservoir values are concerned.

The following table shows the comparative valuations of real estate according to general subdivisions, and also whether or not the property is in or out of use.

TABLE NO. 21A
COMPARATIVE REAL ESTATE VALUATION OF WATERSHED LANDS (INCL. PROPOSED RESERVOIRS)
Segregated as to City's Claim of "Used and Useful." Dec. 31, 1913.
TRANS-BAY LANDS

	PLEASANTON LANDS		NILES CANYON LANDS		SUNOL DRAINAGE LANDS		SAN ANTONIO LANDS		ARROYO VALLE LANDS		CALAVERAS LANDS		LAGUNA CREEK		TOTALS
	In Use	Not in Use	In Use	Not in Use	In Use	Not in Use	In Use	Not in Use	In Use	Not in Use	In Use	Not in Use	In Use	Not in Use	
Defendants:															
M. G. Cadigan	965.11 ac. \$197,536.14	1,641.50 ac. \$979,842.52	629.86 ac. \$27,688.48	1,177.11 ac. \$19,734.15	1,177.11 ac. \$5,164.89	7,364.89 ac. \$182,711.25	4,833.55 ac. \$52,713.30	21,065.47 ac. \$19,610.60	192.41 ac. \$19,768.80	509.61 ac. \$10,768.80	\$1,693,230.09	Valued as Rip Rts. & R/W.			
I. B. Parsons	\$164,856.40	\$987,646.27	\$35,938.48	\$15,185.79	\$41,025.60	\$184,559.95	\$34,283.30	\$167,636.40	\$20,353.70	\$43,316.85	2,719,902.74				
Complainant:															
C. A. Gale	981.11 ac. \$169,444.00	1,641.50 ac. \$1,577,633.52	467.11 ac. \$21,923.65	7,669.61 ac. \$69,343.95	1,177.11 ac. \$50,329.63	7,364.89 ac. \$221,955.34	4,833.55 ac. \$105,954.00	21,065.47 ac. \$618,353.82	192.41 ac. \$23,753.50	509.61 ac. \$50,961.00	3,843,853.13				
C. H. Schween	981.11 ac. \$442,113.45	1,641.50 ac. \$1,559,957.06	467.11 ac. \$21,912.00	7,669.61 ac. \$7,026,234.49	1,177.11 ac. \$64,468.80	7,364.89 ac. \$218,496.09	4,833.55 ac. \$111,143.85	*1,448.03 ac. \$36,200.75	\$22,337.50	\$50,961.00	3,250,314.99	*Parcel 250 **160 acres in E268 not valued			
W. J. Mortimer	981.11 ac. \$459,867.14	1,641.50 ac. \$1,566,544.05									2,017,460.20	*Par. 250, 251, 258, 295 & E241, 3,021.98 acres not valued **E268, Sec. 1.			
W. S. Clayton						**160.00 ac. \$960.00		*18,013.49 ac. \$704,867.00			706,817.00				

Trans-Bay Lands Note: Parcel not sold for Watershed segregation as to E268. E268 and H, Calaveras Watershed extends to M 239. Niles Canyon includes F 239.

PENINSULA

	Watershed, including some outside AM considered in use.	Pacific Slope. Portion considered not in use.	Bay Slope. Portion considered not in use.	West Union Creek. Watershed considered not in use.	
Defendants:					
Norwood B. Smith	18,146.80 ac. \$1,475,304.39	1,912.84 ac. \$25,801.50	280.88 ac. \$33,551.86	1,322.00 ac. \$73,356.20	\$1,605,013.86
Complainant:					
A. S. Baldwin	18,147.25 ac. \$2,532,748.60	1,912.84 ac. \$57,321.30	280.88 ac. \$94,422.00	1,322.00 ac. \$184,721.50	2,809,213.40
W. R. Hoag	\$2,689,950.65	\$67,984.15	\$63,048.00	\$122,200.00	2,929,182.80

LAKE MERCED LANDS

	TOTAL VALUE	VALUE OF LAND USED AND USEFUL
Defendants:		
Thomp. P. Paschel	2,874,097 ac. (incl. 367 ac. for lakes. Total area, 2,472,097 ac. less) \$1,089,841.00	359,057 ac. (not including lake area, 367 ac. additional, value of which is, however, reflected into adjacent land values). \$1,319,715.00
C. B. Martin	1,165.66 ac. (not incl. lake area, value of which is, however, reflected in values of adjacent lands) \$300,537.50	
Complainant:		
A. S. Baldwin	1,165.66 ac. (incl. 367 ac. for lake area) \$6,718,000.00	
James Mc Duffie	1,165.71 ac. (incl. 367 ac. lake area) \$1,451,250.00	

SAN FRANCISCO REAL ESTATE

	Used and Useful	Not Used and Useful	Total
Actual Valuation	\$974,010.90	*\$192,641.20	\$1,166,652.10

* Portion of parcel 282, \$41,250.00 out in condemnation and by Mr. Duffie should be allowed in use.

6. Reservoir Lands.

Perhaps no branch of the valuation of the plaintiff's properties furnishes a more difficult solution than the question of the value of reservoir lands, and particularly those reservoir lands which are now flooded and in actual use for reservoir purposes. Valuations, however, have been placed upon these lands by the witnesses Grunsky and Cory for the plaintiff, and Dillman for the defendants. Mr. Dillman's testimony is based in part upon data furnished by Mr. Haehl, of the Bay Cities Water Company, and there was also some testimony introduced by Messrs. John T. Martin and Edward Bailey, of Los Angeles. There was also data as to reservoir sales introduced by Mr. Means.

It would seem that the requirements of the United States Supreme Court, as set forth in the Minnesota Rate Case, would require us to value those lands at their market value for all purposes.

Counsel has argued long and earnestly concerning the necessity of determining the market value for the peninsula reservoir sites. He has suggested that these sites must be valued as in one ownership, and they constitute property which is both peculiarly adaptable and peculiarly desirable for public use, and that the fact of such adaptability and desirability must be taken into consideration in determining its market value. With this contention we are in entire accord with counsel. It is only in his method of applying the rule in determining the fair value of these reservoirs that we disagree with him. It is the question of "fair value" and "reasonable value" versus monopoly value. Fair market value is what I am going to discuss in this argument, and upon the basis of which I am content to submit our valuation of reservoir sites. By fair value I mean fair to the company as well as to the public.

With the second contention which counsel advances on page 489 of his argument that there can be no reasonable question that the peculiar suitability of the Peninsula reservoir lands, coupled with the needs for lands having just this suitability give the land a higher value than they would otherwise have, I cannot agree. Counsel says that is nothing more than saying that, in general,

where land is peculiarly situated for public use, such use is the highest use, or the most valuable use to which it can be put, and that the market value must be determined with reference to such use.

The term "highest use," in connection with the valuation of real estate, can only be considered in the light of its employment at law. It was a term coined by legislative bodies for the purpose of determining the uses for which property could be condemned. It is elementary that the power of eminent domain cannot be exercised except in the interest of a public use. And as between two public uses it was necessary to determine for which one property already devoted to another public use might be condemned, and out of this arose the term "highest use." Now, I submit that it is perfectly obvious, and entirely in accordance with public policy, to say that the legislative bodies, in conferring the right of eminent domain on public utility corporations for the public use, had no intention whatever of conferring upon these corporations the right to place a higher valuation upon the property by reason of its being taken for a higher use. In other words, highest use, and most valuable use, are not synonymous necessarily.

As I have said repeatedly, and shall again say repeatedly in this argument, the lands in use as reservoirs and the adjacent watershed lands have two possible uses—a water supply use or a real estate use—not both. Land devoted to the public use, as a reservoir site is, cannot also be used as farm land or building sites.

Your Honor has well said, in the discussion of the water-rights testimony, that if highest use does not mean highest value, it must at least mean equivalent value for other purposes, because, on condemnation, the owner of the property would be entitled to receive such equivalent value. In that statement we are in entire accord.

But unless some special reasons are shown to justify the assumption that the public utility use, in this case the reservoir use, justifies a higher valuation than the land would have for other purposes, I say to your Honor, that there is no justification for increasing the value for that use beyond the point of valuation for other purposes.

We shall entirely comply with the rule in *Boom Co. v. Patterson*, and the kindred cases, if we take into consideration the availability and utility of this property for all uses. There is nothing in either of those cases, or any of them, that says, that we must give it, necessarily, a higher value for public utility purposes than for other purposes.

I trust that I have made my point clear. It is a difficult subject to discuss.

Therefore, I suggest to your Honor that counsel has started out (on page 490 of his argument) with an entirely wrong premise. He says:

"The extent to which any particular tract of land, suitable, for instance, for a reservoir site, will be increased in market value—he uses the word 'increased'—by reason of that peculiarity, will vary according as the need for its use, is both immediate and great."

If, as I have suggested, the use is an alternative use to other uses, what possible justification is there for considering it with the assumption that the land will be increased in value beyond its value for reservoir purposes might very well be less than the value which it has for residential purposes. We have an example of that in the case of the Merced lakes, and, correspondingly, the reservoir value in other cases might be greater. But the burden of proof is upon the complainant to show that it is greater, if it is, and they cannot sustain that burden by starting out with the assumption that it must be greater,—they must prove it in the first instance.

Mr. Dillman, in his discussion of reservoir values, has recognized both of these principles. He speaks of a granite bowl having no adaptability to other uses but reservoir uses and recognizing that the ratio of the value of that land for reservoir purposes to any other purpose would be infinity; and he speaks of a physical reservoir situated within the heart of a great city where the real estate value of the land would be so great as to absolutely prohibit its use for reservoir purposes; between wide limits, he says that it is his experience that the valuation for reservoir uses

does not, as a rule, enhance the value of the property as determined by other uses.

If, then, I may accept the premise in counsel's first assumption, and modify his second assumption in the manner that I have just outlined, the peculiar problem that is before us in valuing these peninsular reservoirs simmers down to the solution of just one question: Is the market value of these reservoir lands for all purposes, including reservoir use, greater than the market value of these lands for real estate purposes, and if so, how much?

This brings me to counsel's third assumption, that is, that while it is difficult, if not impossible, to appraise with certainty the exact market value of lands adapted to reservoir use, yet it is possible for a competent witness to fix a minimum figure which he can say with safety is at least the market price. I do not think that counsel's comparison of a reservoir site with the famous race-horse "Maude S" is applicable. Maude S, whatever may have been her special characteristics as a race-horse, was at least capable of being transported from place to place and, if her owner had desired, would have been a subject for the world's markets. She would have been of equal value to almost any person who could afford to buy her. Such, however, is not the case with the Peninsula reservoirs. Their availability is to comparatively few persons, and their value to the company or corporation which happened to be supplying the city of San Francisco with water would be very different from their value to any other person or corporation by reason of the fact that any other owner would not be able to put them to the same use. Their market must therefore be considered as very limited, and in determining the market value we must be careful not to confuse it with monopoly value to the present owner which, as Mr. Dillman explains in his cross-examination, exists solely by reason of the fact that these reservoirs are a part and parcel of the system which is supplying San Francisco with water. Without being connected with that system their value might very well be different from what it is. As a part and parcel of the system their value to the company for reservoir purposes is

very great or very small, depending upon the revenue it derives from its operations.

It has been said in this court that the Calaveras water will be the cheapest water per million gallons daily when delivered to San Francisco. No one here has suggested valuing the Calaveras reservoir site at \$1400 an acre for that reason. If we were to determine the value then solely upon the availability of water utility uses, it would seem then that the Calaveras reservoir would be valued at a higher figure than either of the Peninsular reservoirs, or conversely, that they would be valued at a lower figure than the Calaveras reservoir.

a. Grunsky on Reservoir Lands.

Now, if counsel intends to rest his case on reservoir values upon Mr. Grunsky's unsupported opinion as to what the actual figure to be used is, then I have only this to say,—that Mr. Grunsky is no better qualified to place definite figures on those reservoirs, based solely on his opinion and without any tangible reasons for it, than Mr. Dillman, or your Honor, or counsel, or anyone else. Mere familiarity with the land would not give Mr. Grunsky a knowledge of the figures that he should use. It might give him a knowledge of the fact that reservoir lands would be valuable but would not tell him just how valuable; nor would the fact that he has frequently expressed the same, or approximately the same, opinion, particularly qualify him. The mere fact Mr. Grunsky might have said ever since 1887 that reservoirs are worth \$1000 an acre—at least the Peninsula reservoirs are worth \$1000 an acre—unless he demonstrates in some way that that opinion is justified that would not qualify him.

The record shows that Mr. Grunsky started out in 1887 expressing opinions as to the value of Crystal Springs reservoir lands; that he has been expressing opinions ever since. But it does not show on what basis those opinions were originally founded, or whether there are any means for justifying them to which he has not referred in this case. He does not testify that he has bought or sold sites comparable to Crystal Springs reservoir. He does

not cite a single case of a purchase or sale comparable with the Crystal Springs reservoir. He is unable to use the economic return for the Crystal Springs reservoir as a check on his valuation and, deprived of all these ordinary bases for estimating the value of real estate, I say to your Honor, that Mr. Grunsky's opinion cannot be accepted as conclusive unless he justifies it by some logical line of reasoning. He cannot, by a statement of glittering generalities, justify definite figures. There must be some foundation for the figure which he uses.

b. Method of Valuation.

I shall ignore for the moment the situation in Alameda County where the reservoirs have not been fully developed and the situation at Lake Merced where the reservoir has passed its normal usefulness for water supply purposes and is rapidly approaching the time when it will become an emergency reservoir, and address myself for the time being to the Peninsula reservoirs. The most important of these is the Crystal Springs. Mr. Grunsky was the sole valuator of those properties for the complainant and the method by which he checked or attempted to check his conclusions as to value was to say the least unique. He assumes, first of all, that with respect to the Peninsula reservoirs that there is or can be a necessary relation found between the cost of reservoir lands and that of the adjacent watershed lands, the exact ratio of which may be derived by empirical methods. He next examines the original cost of the Peninsula reservoir watershed lands as shown by the records of the company. He selects certain parcels having a greater or less submerged area which he classifies as reservoir parcels; and certain other parcels having a smaller submerged area which he classifies as watershed parcels. For the purpose of the argument I assume that the last segregation he made in the record is the one he intended to finally rely upon.

He compares the average original cost per acre of the two classes thus segregated, and finds that the lands he has classified as reservoir lands cost approximately four times per acre what the lands he has classified as watershed lands cost. He then takes

each of the parcels he has classified as reservoir parcels and tabulates it so as to show the exact acreage in the reservoir and the exact acreage in the watershed, and segregates the average cost per acre between the reservoir acreage and the watershed acreage on the first indicated apportionment of four to one. He then ignores the watershed acreage in that parcel and derives, by this second indicated cost, as he calls it (8252 *et seq.*) an average price of \$406 per acre for the reservoir acreage of the lands he has classified as reservoir lands. Similarly he takes each of the parcels that he has classified as water-shed lands, subdivides it into watershed and reservoir acreage, applies the factor 1 to the watershed acreage only, ignoring the reservoir acreage, and obtains an average cost per acre of \$38 for the watershed acreage of the lands he has classified as watershed lands.

From the results of these two approximations he concludes that the reservoir acreage in the parcel cost originally more than ten times as much per acre as the watershed acreage.

He next takes the census reports showing the increased valuation of San Mateo County properties and derives therefrom the information that farm lands have increased in value since 1870 at the rate of about 5% over the years since 1870, compounded annually. He applies this 5% compound interest to his derived cost of \$406 as of the average year of purchase, 1882, and determines that the Crystal Springs lands were worth, in 1913, about \$1950 per acre. By similar methods he determines that Pilarcitos would be worth \$505 and San Andreas \$1400 per acre in 1913, and concludes that \$1400 per acre would be a fair price for all the Peninsula Reservoir lands as of December 31, 1913.

He attempts to corroborate this figure by showing that Judge Farrington placed a value of \$1000 per acre on these lands in 1903.

I believe that I have fairly stated the principles and assumptions on which Mr. Grunsky worked in making his appraisal; if we have not I will be glad to have counsel call my attention to any mis-statements.

Before discussing the weaknesses of his methods I want to briefly state Mr. Dillman's method of appraisal for the city, so

that your Honor may have them both before you for comparative purposes.

c. Dillman's Method.

Mr. Dillman also started out with the original cost of these reservoir lands, but without the assumption that there was or could be any necessary ratio between reservoir lands and the adjacent watershed lands. He says (6497):

"I can conceive of a granite bowl, or a property shaped for a reservoir, having no value for any other purpose and therefore the ratio of its value as a reservoir to its value for any other purpose would be infinity, irrespective of what that value was. There are also possible cases of physical reservoirs in the heart of a city where the value for residential purposes makes them absolutely prohibitive for reservoir purposes. Between these extremes my experience is that the value of the land for reservoir purposes as indicated by the cost of acquiring it for such purpose very closely approximates its value for other uses."

This assumption, as I shall show, is corroborated by a great many instances of the sale of reservoir lands in California, while Mr. Grunsky has not corroborated his hypothesis by a single instance worthy of consideration.

Mr. Dillman started out with this assumption, that if he used the average price per acre of each of the parcels purchased by Spring Valley for use in whole or in part for reservoir purposes, and increased that price by a fair average percentage per year since the date of acquisition that a fair value would be determined for use in the year 1913, and he selected 5% simple interest as his factor of increase reaching, by these methods, a value of \$320 for the Crystal Springs lands, \$200 for the San Andreas lands, and \$45 for the Pilarcitos lands.

It should be remembered that Mr. Dillman in making his statement as to the percentage used in the first instance indicates that that should be his opinion as to the percentage for the years in question; later, in cross-examination, I think he did make some general statements that 5% would be the percentage to apply under any circumstances. I am satisfied, after listening to Mr. Olney's

points the other day, that he must have been in error in that conclusion because, as Mr. Olney pointed out, if the company should transfer the lands in the meantime it would upset the whole calculation and the value could not rest on that. That does not necessarily mean, however, that Mr. Dillman's application of 5% to the particular years that are involved here, that is, from the mean date of the purchase of these lands up to the date of the valuation, might not be entirely fair and consonant with the facts, and I shall attempt to show that from other figures in the record before I conclude.

Mr. Dillman then suggests an alternative method which might be used by taking the appraised value of the adjacent watershed lands, as figured by the real-estate appraisers for December 31, 1913, multiplying it by the reservoir acreage, and adding a percentage of about 25% for unification and demonstrated adaptability.

It should also be remembered, that Mr. Dillman, in figuring his valuation for reservoir purposes, has based it on a modified cost-of-production theory and not on what he conceives might be the value to the corporation itself. As he states, on cross-examination, the value to that corporation might be very much in excess of the figures that he has given. And on re-direct examination he states that this could be due only to the enhanced profits, as shown by the rate of return which the corporation was earning. A logical circle prevents him from attempting to estimate any such value in a rate-fixing case.

Later Mr. Dillman shows (10825) that the equivalent compound percentages which should be added to the original cost of the Peninsula reservoirs to give the appreciated value which he has used, would be 3% of Crystal Springs, 2½% of San Andreas and 2½% of Pilarcitos.

d. Comparison of Methods—Fallacy of Grunsky's.

From a comparison of the foregoing methods it will be seen that the principal difference between Mr. Dillman's and Mr. Grunsky's methods lies in the latter's assumption that the Peninsula reservoir lands are worth ten times as much as the adjoining

watershed lands; and that the ratio of increase for the years in controversy would be 5% instead of 3%, which is the equivalent of what Mr. Dillman uses on a compound basis. Although it is a very difficult subject to analyze I shall now try to outline to your Honor the reasons why I believe that Mr. Grunsky's method cannot be used in arriving at any satisfactory solution of this reservoir value problem.

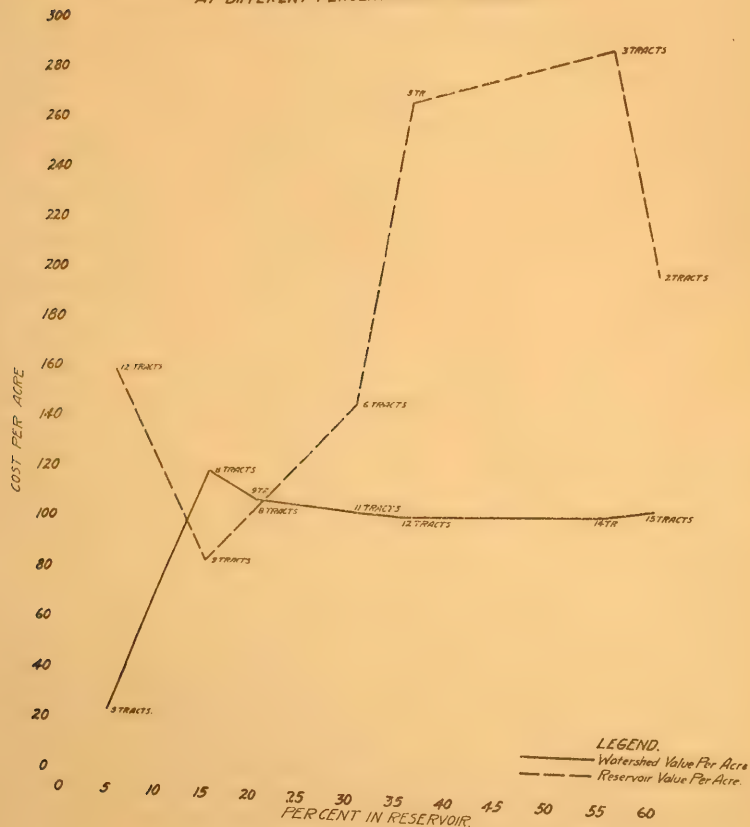
The first fundamental error into which it seems to me Mr. Grunsky has fallen is the assumption that there is any necessary ratio between the value of reservoir land and the value of the adjacent watershed land. As I have shown, his formula is purely an empirical one, and is based upon the selection of a relatively small number of tracts. The variation in the average prices paid for those tracts are so great as to preclude the idea that there could have been anything like an established market price for reservoir lands at the dates of their purchase. The same line of reasoning applies to the tracts which are selected as representing the watershed land prices. Even if in the ten tracts which he finally selects (page 8253 of the record) as representing the reservoir land values for Crystal Springs reservoir could be taken as showing some average ratio for the 667 acres involved therein, there does not seem to be the slightest reason for assuming that the same ratio would apply to the San Andreas reservoir or to the Pilarcitos reservoir, or to any other residual acreage in the Crystal Springs reservoir. In fact, the second approximation for San Andreas (8259) indicates, on Mr. Grunsky's theory, a ratio of less than four to one, instead of ten to one; and so far as the Pilarcitos is concerned, he admits that no ratio at all can be determined from the data available for purchases there, but that it might as well be ten to one as anything else. So on the face of his argument, the attempt to apply the ratio of ten to one all over the Peninsula reservoirs doesn't get us anywhere, and is not borne out by the historical facts.

In the second place, Mr. Grunsky's selection of lands in the Crystal Springs area did not exclude tracts, the prices of which were clearly influenced heavily by other considerations than those of reservoir value.

GRAPH SHOWING EFFECT OF SELECTION OF RESERVOIR & WATERSHED PARCELS UPON THE RATIO OF VALUE PER ACRE.

CRYSTAL SPRINGS RESERVOIR & WATERSHED TRACTS IN GRUNSKY'S
TABLES NOS. 28 & 29-P6.8254 & 8255.

ACTUAL RELATION OF AVERAGE COST PER ACRE IN DOLLARS
AT DIFFERENT PERCENTAGES IN RESERVOIR



RATIO OF COST PER ACRE IN MULTIPLES OF ONE AT DIFFERENT
PERCENTAGES IN RESERVOIR.



MR. SEARLS—And this table shows another thing, that by the selection of a proper percentage you could obtain any desired ratio as between watershed and reservoir values. For instance, if

TABLE 21.

TABLE SHOWING EFFECT OF SELECTION OF RESERVOIR AND WATERSHED PARCELS UPON THE RATIO OF VALUE PER ACRE

Grunsky's Table 28 & 29, pp. 8254 & 8255

Parcel No.	Ac.	0% in Res. Cost	5% in Res. Cost	10% in Res. Cost	15% in Res. Cost	20% in Res. Cost	30% in Res. Cost	35% in Res. Cost	50% in Res. Cost	55% in Res. Cost	60% in Res. Cost	75% in Res. Cost										
41			44.95	6,000.00																		
94																						
92																						
96																						
47									23.65	6,500.00	80.01	32,500.00										
68							70.75	15,000.00				14.45										
37					980.04	396,645.83						10,248.55										
44							516.43	15,492.90														
55										21.86	1,867.50											
50												98.94										
39			2162.35	38,624.35				481.80	42,000.00			11,872.80										
90					981.50	122,150.00																
48							1161.78	70,000.00														
49	659.80	15,500.00																				
72 & 73					317.35	26,974.75																
41			44.95	6,000.00																		
42	22.38	3,916.50																				
Totals	682.18	19,416.50	2252.15	50,624.35	317.35	26,974.75	1961.54	518,795.83	1161.78	70,000.00	587.18	30,492.90	481.80	42,000.00	23.65	6,500.00	21.86	1,867.50	80.01	32,500.00	113.39	22,121.35
1	6.63	<	2934.33	\$70,040.85	23.87	><																
1	.704	<		5213.22	\$615,811.43	118.12			4748.53	\$751,252.33			158.21									
1	963.	<			6374.97	\$685,811.43				2469.64			\$205,481.75									
1	1.42	<				107.58								83.20								
1	1.259	<				6962.15	\$716,304.33	102.89	><				1307.89	\$135,481.75								
1	2.78	<				7413.95	\$758,304.33							720.71	\$104,988.85	103.59						
1	1.85	<					7189.46	101.87	><						238.91	145.67						
								\$766,671.83								\$62,988.85	263.65					
								102.37	><							193.40	><	\$54,621.35				
								7569.47													282.43	
								\$799,171.83													><	113.39
									105.58												\$22,121.35	195.08

Before taking that up I want to hand your Honor some tables I have prepared here which show the effect upon the ratio that would be derived from the selection of different proportions of watershed and reservoir acreages. The figures are shown on Table 21; and they have been plotted graphically on Table 22. The graph has no particular significance except as being a pictorial representation of the fluctuations which results from different selections of reservoir acreages and watershed acreages as determining the question of the parcel as a watershed parcel or a reservoir parcel. I don't know whether I have made that clear to your Honor or not.

THE MASTER—No, it is not clear to me. None of this is clear to me on hearing it; I have to read it.

MR. SEARLS—I will try it again. Mr. Grunsky, in his final analysis, made a segregation between the reservoir and watershed lists on the bases of letting the preponderance of the land in each parcel, put it in one or the other classification, that is, either beneath the flow line of the reservoir or above the flow line. This classification was not based upon any definite percentage in any instance. This table that I have just handed you shows that if you use a percentage say of 50 per cent. of the acreage as being the least percentage that would entitle a parcel to a classification as a reservoir parcel a certain ratio would be obtained for all of the parcels. If you use 60% or 80% a different ratio would be obtained. If you are going to adopt some percentage as determining whether the classification shall be reservoir or watershed then you should stick to that classification and not arbitrarily throw a parcel into the reservoir classification merely because the price per acre happened to be high.

THE MASTER—You see, Mr. Searls, I don't remember Mr. Grunsky's theory even after you have stated it, because it is so intricate; I am listening now and not pretending to understand it. When you get your record complete then I will have a chance to study it. Anything as complicated as this my feeble mathematical intellect never follows.

MR. SEARLS—And this table shows another thing, that by the selection of a proper percentage you could obtain any desired ratio as between watershed and reservoir values. For instance, if

it is desired to show a 6 to 1 relation for reservoir to watershed lands in obtaining the first approximation from the selected tracts take all of the parcels that are from zero up to 5% in reservoir and call them watershed parcels, and take all the parcels that have from 100% down to 5% in the reservoir and call them reservoir tracts—five tracts will fall in the watershed classification, averaging \$23.87 per acre and twelve tracts will fall in the reservoir classification averaging 158.21 per acre, giving a relation of 6.6 to one. This is shown opposite the figure 5 per cent. on the curve. I will take another example: if it is desired to show that watershed lands cost more per acre than reservoir lands, for the first approximation from the selected tracts take all the parcels that have from zero up to 15% of their acreage in the reservoir and call them watershed lands; take all the parcels from 100% down to 15% in reservoir and call them reservoir parcels, 8 tracts will fall in the watershed classification, averaging \$118.12 per acre and 9 tracts will fall in the reservoir classification averaging \$83.20 per acre, giving a relation of the cost of reservoir lands to watershed lands as 7-10 to one, or showing that watershed lands cost more per acre than reservoir lands.

I will take one more example: if it is desired to show that watershed lands cost the same per acre as reservoir lands from the selected tracts take all of the parcels that are from zero to 20% in reservoir and call them watershed parcels and take all the parcels from 100 to 20% in the reservoir and call them reservoir parcels, 9 tracts will fall in the watershed classification, averaging \$108.70 per acre, and 8 tracts in the reservoir classification averaging \$103.59 per acre, giving the cost of reservoir lands to watershed lands as .96 to one, or showing that the rate paid for reservoir and watershed lands was approximately the same.

The results show that the relation that the cost per acre of reservoir lands bears to the cost per acre of watershed lands varies with the selection a percentage of the acreage in reservoir as the basis for determining whether the parcel is classed as reservoir or watershed lands. Mr. Grunsky was not even consistent in using a given percentage in his classification.

As I shall show later, he stated, on cross-examination, that

one of the principal bases of his classification was the price per acre that was paid; in other words, he assumed the very thing he started out to prove, that the reservoir acreage must cost more than the watershed.

e. Selections not Consistent or Fairly Representative.

In the second place, Mr. Grunsky's selection of lands in the Crystal Springs area did not exclude tracts, the prices of which were clearly influenced heavily by other considerations than those of reservoir value. He has included, for instance, as reservoir land all the San Mateo Water Works purchase (Parcel 68), although there were but 150 acres of that purchase in the reservoir, and 829 acres in the watershed. In addition to this improvements consisting of two small reservoirs within the Crystal Springs area were included, and the purchase was made after the Supreme Court had held that the company did not have the power of condemnation. If, as Mr. Grunsky suggests, this purchase should be apportioned on the basis of ten to one, resulting in the figure of \$1700 per acre for 150 acres of reservoir land, and \$170 per acre for 829 acres of watershed land, and if as is shown on Table 19 (p. 7878), the entire 1387 acres of reservoir land in the Crystal Springs were purchased at \$421 an acre—(assuming cost on a ten to one basis)—and cost \$583,927, the 150 acres of reservoir in Parcel 68 would have cost 150 times \$1700, or \$255,000, or a little less than one-half of the total cost of the reservoir acreage; whereas the 150 acres was in area about one-ninth of the total acreage. These figures are so grossly disproportionate to anything else that has been purchased that I believe they should be disregarded in getting at any fair indication, particularly as there was nearly six times as much of this parcel outside of the reservoir as there was inside the reservoir; and, as I have said, more or less expensive waterworks structures were included in the purchase, which would tend to nullify the effect of the figures on land value. Another factor which tends to destroy the fairness of Mr. Grunsky's comparison is the great excess of the watershed area over the reservoir acreage which he uses for comparative purposes, and the vast difference in the utility of most

of this watershed land from the real estate point of view, all of which would tend to destroy any fair ratio based on reservoir value. For instance, he has taken Parcel 39 as having over 2000 acres of watershed land lying, for the most part, on the high, bushy crest of the Sawyer and Cahill ridges, which constitutes nearly one-third of the total watershed acreage considered, but which, on Mr. Grunsky's own apportionment, would have a value for watershed purposes of \$29,000, as against \$296,000 total watershed value on his ten to one apportionment; that is, one-third of the acreage would have but one-tenth of the total value.

f. Disturbing Factors.

The two cases I have just mentioned it seems to me tend to distort the fair average results, even using Mr. Grunsky's methods. In addition, it should be borne in mind that all of the tracts which are classed as reservoir tracts on page 8255 of the record, where Mr. Grunsky's final classifications are set forth, are, with the exception of Parcel 37, situated on the west side of the lakes, and were composed of relatively small acreages, presumably devoted at the time of purchase principally to use as home sites. There is some testimony in the record as to the Sherwood place, Crystal Springs Hotel, and the Carey place. Parcels classified as watershed, on the other hand, are for the most part, very large tracts of land such as Parcels 39, 49, 90 and 48, having at the date of their purchase presumably little residential value, and better adapted for farming and grazing purposes. There is not a question in the world but that a very large difference in the prices paid for these classes of land would have existed even if they had not been within the limits of the reservoir area.

Grunsky admits (8191-8191½) that with the single exception of the San Mateo Water Works purchase, of which I have already spoken, and the Drinkhouse tract, which, by the way, only had nine acres inside the reservoir, the difference in the average price per acre of these classes of land is no greater than we might reasonably expect to find between home sites and farming and grazing land. This contention will be further borne out if the list on

Table 26 (page 8252) be compared with the list on the following page. It will then be seen that all the large acreage of land classified as watershed land sold at relatively low prices, or from \$17 to \$85 an acre. On the other hand, the smaller tracts of land classified as watershed land—such as Parcels 41 and 42—sold for \$133 and \$175 an acre, respectively, presumably being valued as home sites. On the following page, the small tracts of land classified as reservoir land show very high prices, even excluding the San Mateo Water Works and Drinkhouse purchases from consideration. The large tracts of land classified as reservoir land sold at relatively much lower prices—for instance, Parcel 37 at \$30.00 an acre, Parcel 50 at \$87 an acre, and Parcel 55 at \$120 an acre. These prices did not differ very materially from the prices paid for similarly situated watershed land. Considerations of this sort lead one to conclude that the question of reservoir value really had little to do with the price the company paid, with one or two exceptions. It follows that there is no justification for segregating the parcels at the flow line, as the part of the villa site parcels above that might well be just as valuable as that below it.

Counsel has spoken several times of the large price paid in the Drinkhouse case. The record shows how this price came to be paid (8177-78). While the total price paid eventually for that tract, which is Parcel 94 on the Exhibit, was \$10,248, the original price allowed by the trial court, which excluded reservoir values, was \$5203, of which \$2000 represented improvements. Having been reversed by the Supreme Court on appeal, because all consideration of reservoir value had been excluded, the company put up a deposit of \$5000 to cover damages, and went into possession of the property. The case was never tried again to determine what the property was really worth, the defendant finally electing to accept the \$10,000 on deposit rather than fight any further after the Supreme Court had denied her a writ of restitution. On such a record it hardly seems possible that there could have been any fair determination of the market value of this property from a judicial standpoint, and even if it was a determination the ratio was only 2 to 1 if the court's appraisal of the improvements in the first trial be accepted

as some indication of their value. If the company had tried the case a second time, it is entirely possible that they might have gotten a very much lower award than the total amount paid.

g. Prices Paid Determined Segregation, Not Reservoir Availability.

Thirdly: Mr. Grunsky, in classifying his lands as reservoir and watershed lands, has been governed by the prices paid rather than by the percentage of land which lay within or without the reservoir (8175-8188-8186). This will be shown by an examination of the schedule which I have prepared to accompany this branch of the argument. In other words, he has assumed what he has set out to prove—that the high price paid for land was because of reservoir value. For the purpose of testing his method I made the reclassification that is shown in Tables 21 and 22.

h. San Andreas Figures.

Fourth: Mr. Grunsky's unique assumption of ten to one on the Crystal Springs finds no corroboration on the San Andreas, where on the basis of his own approximation (8259), his second approximation indicates a ratio of only four to one, and where again we find the price per acre varying more with the size of the parcel than with the percentage of the reservoir land it contains. Moreover, some of his San Andreas watershed parcels are not on San Andreas watershed at all, for example, Parcel 43 (8192-3).

i. Pilarcitos.

Fifth: So far as the Pilarcitos is concerned, Mr. Grunsky admits that the data is too meager to determine anything, and his assumption of ten to one is purely arbitrary, so far as that reservoir is concerned.

j. Errors in Appreciation Percentage.

Sixth: The percentage of annual increase in valuation which Mr. Grunsky uses appears to be too high. He has assumed a 5% annual increase based largely on the United States Census figures of the assessed value of farm lands in San Mateo County. We have no means of knowing what those figures include. There may

have been, and probably was, considerable Government land not subject to taxation in the early years, in this county. Use of the assessment roll results in later years in unduly inflating the total valuation. The erection of high-class improvements on villa sites within the last ten years must have tended to very considerably disturb the ratio of increase. Again,—and this seems to me is a point which very pertinently affects this ratio of increase,—much of the land in the Crystal Springs reservoir had at the date of its purchase and acquisition by the company some value for use for home site purposes. This was not true of much of the other land in San Mateo County. The rapid increase in valuation in later years indicates that this land in the southern part of the county has come into use as home sites and villa sites and has acquired a considerable increment in value. Now, it would be obvious that to apply the average percentage of increase for the entire county to the Spring Valley parcels, the result of it would be to excessively enhance their valuation for they already had acquired some value for that usage.

Counsel has taken very vigorous exception to Mr. Dillman's use of 5 per cent. annual increment for the number of years involved in this particular case, reckoned as simple interest, instead of compounded, as Mr. Grunsky did. While I think I stated the other day that counsel's point is good as to the impropriety of using simply interest as a general method of computing increment in value, there was certainly no injustice done the company in this case, by using simple interest, because the lands did not change ~~lands~~ during the years in controversy, and the witnesses started out with a specified number of years for which the interest was to be computed. Dillman stated on cross-examination (6524) you could figure it at compound interest if you wanted to, but it would be a lower rate. This was at the time he first testified with respect to reservoir values. And later he gives his equivalent compound percentage of 3% for the Crystal Springs tracts and a little less than that for the other tracts (10,825).

These percentages which Mr. Dillman uses are corroborated in several ways. If you will take Mr. Grunsky's own table, page 1246,

and compute the interest rate from the year 1880 (Table 9), which is nearer the average date of the Crystal Springs purchases, you will find that the rate of increment is but 3 per cent. If you make a similar computation in Table 6, page 1243, for the same year, less than 4 per cent. will be derived. Mr. Metcalf, in his development cost studies, assumed 2 per cent. as a fair annual increase over the company's life of the property. Mr. Lee derived from the Assessment Roll of Alameda County the fact that farm land within the limits of Washington Township have increased in value at the rate of 1.88 per cent. since 1888 (9652), and that in Santa Clara County the increase for the whole county has been 1.89 per cent. between 1888 and 1913.

MR. GREENE—With reference to Mr. Metcalf, Mr. Searls, it is hardly fair to state it the way you did: He said that he took an absolute minimum figure there in order that he could not be accused of being anything but conservative. You remember that you examined him on that subject, and he explained the matter to you at the time.

MR. SEARLS—Well, I was thinking of the heading of his table. Of course, I do not expect his Honor to rely on Mr. Metcalf as a real estate expert in determining the percentage. He certainly assumed that in making up his development study, whether he was justified in so doing or not.

I have here an additional table (Table 23), on which has been plotted a 5% compound interest curve, a 5% simple interest curve, and the actual increase in value as shown by the figures which Mr. Grunsky uses, taken from the United States census. It is interesting to see that the 5% straight line taken from the year 1880 more closely approximates in the long run the increase in values than does the 5% interest curve.

MR. GREENE—I wish you would explain those dots opposite the year 1910, Mr. Searls, at the end of the curve, what do they represent?

MR. SEARLS—That was simply to indicate the value in millions of dollars on the assessment roll in San Mateo County for

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INCREASE IN VALUE
OF
SAN MATEO CO. FARM LANDS & BUILDINGS
ACTUAL ~ ESTIMATED.

LEGEND

GRUNSKY'S ESTIMATED INCREASE THUS ———
DILLMAN'S " " " — · — · —
" U.S. CENSUS ACTUAL " " - - - - -

NOTE: Grunsky estimated a 5% increase in
value each year compounded

Dillman estimated a 5% increase in
value each year not compounded

* Grunsky's Table 9 - Record Pg 1246

MILLIONS OF DOLLARS

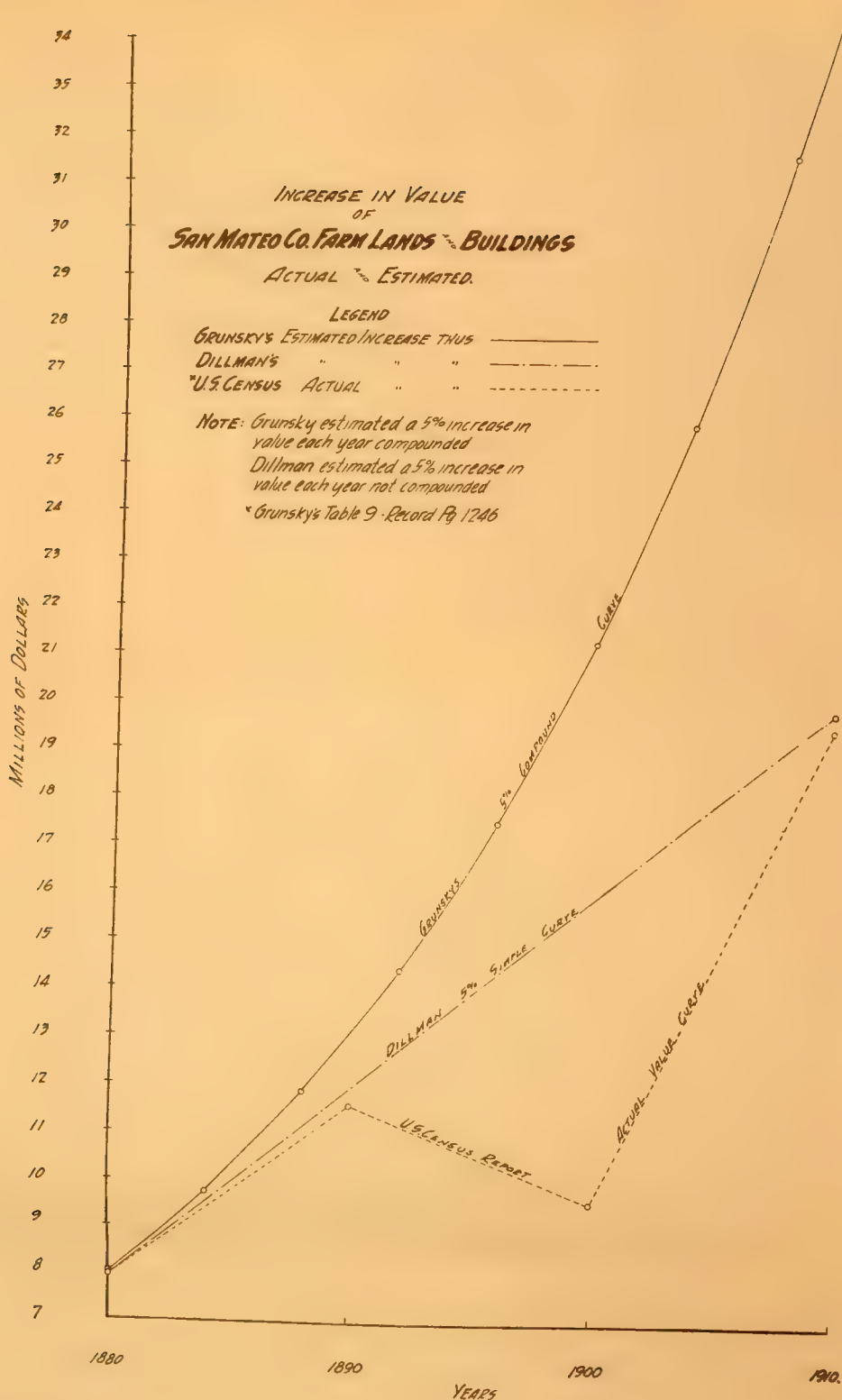
1880

1890

1900

1910

YEARS



those years. Those dots indicate the years which Mr. Grunsky has given, I think.

MR. GREENE—Do you mean that the lower dot represents the valuation of the property in San Mateo County in 1910, and that the upper dot represents what would be the value if Mr. Grunsky's 5% compound were taken?

MR. SEARLS—From the year 1880. Mr. Grunsky took it from 1870. If you take it from 1870, which was not the mean average date of the purchase of the Crystal Springs reservoir, it will bring you out at approximately the same figure as the lower dotted curve does.

k. Grunsky's Alleged Corroboration.

Seventh: Finally Mr. Grunsky attempts to corroborate his ten to one ratio in a most interesting manner. He says that Judge Farrington found in the 1903 case that reservoir land was worth \$1000 per acre, and watershed land \$100 per acre, and that such finding tended to establish the market price on that basis. In this connection the record shows the history of this ten to one story (page 8176, et. seq.). It appears that way back in 1886 Mr. Grunsky was employed by the owners of the Drinkhouse property to appraise their land for them in the condemnation suit then pending with the Spring Valley Company. Mr. Grunsky placed the figure of \$1250 per acre on it in that case. The curtain drops, and we do not hear any more about \$1000 reservoir value until Mr. Grunsky became city engineer in 1901 or thereabouts. He was called upon by the Board of Works to make a report as to the value of the Spring Valley properties. Mr. Grunsky is consistent with his record valuation, and places \$1000 on reservoir lands, reaching a total valuation of all the properties, as it appears later in the records of this case, of some \$28,000,000.

It is interesting to note here that the property seems to have depreciated from 1888 down to 1900 on the strength of Mr. Grunsky's own figures.

Mr. Partridge, in trying the 1903 case, introduced this report into evidence in behalf of the city, and along with it went Mr.

Grunsky's \$1000 valuation of reservoirs. Judge Farrington, in deciding the case, naturally could not go below the figures which the defendants' witness thus conceded, and found \$1000 the value of reservoir, and \$100 for watershed lands.

MR. McCUTCHEN—Does that appear in the record in this case, Mr. Searls?

MR. SEARLS—Yes, at page 8176.

Now, Mr. Grunsky comes back in this case, this time as witness for the Spring Valley Company, and again testifies to his famous \$1000 value, only he finds that the enormous increase of real estate values has brought it up to \$1400, and he then says that Judge Farrington's findings corroborate his evidence. This is the most interesting example of mentally hoisting himself over the fence by his boot straps that I have had occasion to observe. Mr. Grunsky appears to be at the bottom of all \$1000 reservoir values that have ever been made, and if the land is worth \$1000, it must be because Mr. Grunsky says so.

Your Honor has had occasion to note from the testimony of Plaintiff's own witness that the average value of the watershed lands owned by the Spring Valley Company was nothing like the figure that Judge Farrington found—in fact, it averages \$82.72 per acre as against Judge Farrington's \$100; defendant's average is \$54. Is there any reason for supposing that the learned Judge's findings as to reservoir value are any more nearly correct, particularly in view of the record in the 1903 case, or the portion of it that was included in this record.

Nor is Mr. Grunsky's alleged check, based on the Baldwin and Hoag valuation of the Crystal Springs watershed lands, a proper check at all—if anything, it shows that his values are too high. As stated in my discussion of the peninsula valuations, in order to give to the testimony of Mr. Baldwin and Mr. Hoag any credibility at all, I eliminated from consideration their statement that they had ignored the presence of the peninsula lakes in valuing the adjacent watershed lands, I think that statement was, in itself, nothing more than an attempt to enable complainants to avoid the very charge which I am now going to make, and that

charge is that, in adding Mr. Grunsky's valuation to the valuations of Mr. Baldwin and Mr. Hoag, they have duplicated, in part, the valuation of the peninsula properties. Unquestionably Mr. Baldwin's and Mr. Hoag's valuations do include consideration of the presence of the lakes; and unquestionably that factor is reflected into the figures which they have placed on the adjoining watershed. If this be assumed,—and it is the only assumption that is consonant with reason,—then, when you add to their figures Mr. Grunsky's figures, you have added a reservoir value which has already been included, in part, and you have a clear duplication.

The lakes cannot lend scenic value, and real-estate value, to the adjacent lands, and still be used for water-supply purposes. If they are valued exclusively for water-supply purposes then consideration of the availability of the adjacent lands, for residential purposes, must be eliminated. And so, when Mr. Grunsky says that his increment in the original cost of the watershed lands makes them check with the Baldwin and Hoag appraisal, it means one of three things: The amount he has allocated to the watershed value, under his apportionment, is too low, or his percentage of annual increase is too high, or Baldwin and Hoag's appraisals are entirely too high. I incline to the theory that it is the percentage of annual increase which is at fault.

But in any event, Mr. Grunsky cannot properly check his assumed original apportionment of watershed value, with all reservoir considerations eliminated, against the Baldwin and Hoag appraisal which must include reflected elements of reservoir value. If it does check, something is wrong.

If Mr. Dillman's theory of using the average price per acre on the original purchase is adopted, it may be checked against the recent appraisals. But, in that event, the original cost of the watershed land would be increased, or a smaller percentage of annual increase indicated.

The Plaintiff made some attempt to corroborate this wonderful ten to one ratio, by allusion to purchases in the Hetch Hetchy Valley made by the city of San Francisco. In the first place, assertions made by both Mr. Grunsky and Mr. Cory are not borne

out by the reported Smith offer which was read into evidence by Mr. Burgin (pp. 1379-1380). It appears (p. 1387), that the prices for the inside lands and outside lands were \$223 and \$32 per acre respectively, or a ratio of seven to one, if the figures are fairly applicable. That was in a mountainous district where the value of the lands for any other purposes than reservoir purposes should be inconsiderable. The Hetch Hetchy Valley, for instance, comes very much nearer to Mr. McCutchen's granite bowl than any other reservoir tract with which we have had to deal in this case. Furthermore, we have the testimony of Mr. Drenzy Jones, accompanied by contour maps which are in evidence as Exhibits Nos. 129 and 130, showing that the reason for the purchase of the lands by the city outside of the flooded area was for exchange to the United States Government under the terms of the Garfield permit, and that the city was under pressure to complete the purchase so as to be able to make that exchange. Furthermore, the comparison of the agreements on the basis of which these lands were actually purchased—in evidence as Exhibits Nos. 126, 127 and 128—with the reputed offer read into evidence by the witness Burgin (page 1379 et. seq.) will show your Honor that the final acreages purchased were very different from those originally offered, and that no segregation whatever was made on the final purchase between the inside and outside lands. I therefore conclude that the Hetch Hetchy purchase affords no corroboration whatever to Mr. Grunsky's figures, and far from that if the segregations of the value alleged by the plaintiff's witness, Mr. Burgin were, as a matter of fact made, they show a ratio seven to one for lands which certainly have no real estate value comparable with the Spring Valley peninsular lands. Hence, they should have a much higher relative reservoir value. If the contention that we advanced, that there was no segregation, be granted, the Smith-Kellett purchase averages only \$109 an acre, and when considered in connection with the city's necessity at that time, cannot be said to bear any improbable ratio to the real estate value. This is the only corroborative case cited by the plaintiff for all this talk about reservoir valuation. Mr. H. T.

Cory, testifying for the plaintiffs, also cites the Farrington case and the Peoples Water Company's own valuation of their own reservoirs, but I submit that this doesn't mean anything in the way of corroboration.

1. Dillman Corroborated.

Quite a contrast to this is the evidence which has been adduced in support of Mr. Dillman's contentions. Mr. Dillman says that for the peninsula lands there should be no difference between the cost of the reservoir lands and the immediately adjacent watershed lands in the same parcels. None of the original purchases appear to have been segregated at the time they were made on the basis of any such proposition. Mr. Dillman cites numerous purchases of reservoir lands in which no segregation was made at the time of purchase,—the Bay Cities Water Company's purchases made in the vicinity of San Francisco Bay, Arroyo Valle, Santa Isabel and other creeks draining into the Santa Clara Valley watershed. While the portion of Mr. Haehl's testimony which related to agricultural valuation of the land was stricken out by your Honor, an examination of the table shown in Exhibit No. 132 as to the prices paid for the Bay Cities reservoirs will show that no such ratio as ten to one or any other particular ratio could have existed between the reservoir and watershed lands. It sufficiently appears that the San Felipe, Laguna Seca and Uvas Creek watershed lands had more than a nominal value, and the prices paid for the acreages were so small that no ratio of importance could have existed. Mr. Dillman further cites the purchase of the Phoenix reservoir site of the Marin Water & Power Company, at \$40 per acre, including water rights; the Wild Horse Valley reservoir at Vallejo, \$24 per acre; a number of sites on the Stanislaus River at \$25 per acre; Lake Arthur reservoir, \$37 per acre; Gravelly Valley reservoir site, \$45 per acre; Goose Valley reservoir site at agricultural prices (the last named tract being owned by the witness himself).

In addition to this we have the testimony of Mr. Means given early in the case as to the purchase of the various government

reservoirs in Wyoming, South Dakota, California and Nevada (1493 et. seq.). For none of them was any more than the agricultural price of the land paid. For the Truckee-Carson project in Nevada land was bought for reservoir purposes as low as \$2.60 per acre.

m. Los Angeles Data.

Realizing the importance of this branch of the case, in view of the very undesirable finding, from my point of view, established by Judge Farrington in the last case, I have attempted to gather together every bit of evidence I could as to reservoir values in this State so that your Honor might have the whole truth of the matter before you. With this thought in mind I asked Messrs. John T. Martin and E. P. Bayley, of Los Angeles, to testify on the question of reservoir costs in the south. Their testimony, which your Honor will find on pages 10,105-10,162, and 10,638-10,663 of the record, show that nothing more than the real estate value was paid for any of these Los Angeles reservoirs. Mr. Martin's testimony is supplemented by Exhibit No. 193. I think it appears from the testimony of both Mr. Bayley and Mr. Mulholland, who was afterward called for the plaintiff, that the Los Angeles reservoirs are not particularly good storage propositions, and I do not know that any of our witnesses contended that they were. The fact remains undisputed, however, that they furnish all the local storage that the city of Los Angeles gets, and that the city of Los Angeles was and is in the market for all of the available sites it could purchase, and that they did not have to pay any other than real estate value for such sites. It seems to me a matter of little moment, therefore, whether the San Fernando reservoir is as good for storage possibilities as the Crystal Springs or not. It was the best they could get, and Los Angeles knew they had to have it. The same is true of the Franklin and Dry Canyon reservoirs. So I think that this bit of evidence as to the experience of the second largest city in California with respect to storage for its water supply is to be given some consideration in arriving at conclusions. It is of course admitted that those Los Angeles reservoirs did not have their watershed immediately adjacent, but that

factor seems to me of comparatively little importance. Mr. Grunsky admits that in the proposed future development of San Francisco's supply, the peninsula reservoirs will become balancing reservoirs rather than reservoirs used exclusively for collection purposes. The main and only function of a reservoir is to store water. It makes little difference whether the water comes in over the adjacent watershed, or is brought in from a distant watershed through conduits. Its storage capacity is the same in either event.

Presumably the danger of pollution and consequently the necessity of acquiring large acreages of land for protective purposes is less in a reservoir which is purely a storage vessel by reason of having a small watershed than in the case of the reservoir which is also a collecting vessel, by reason of the large adjacent watershed.

n. Other Local Sites Possible.

There is no disposition on our part to claim that the Peninsula reservoirs are not very useful properties, and that it is not very desirable that San Francisco should always have these reservoirs for local storage purposes. All the witnesses agree on the desirability for that purpose. There is nevertheless, evidence in Mr. Grunsky's testimony (pages 1329, 1335) to show that a reservoir could be built at Belmont capable of holding three billion gallons. If the consumption in San Francisco were fifty million gallons a day, this would mean a 60 days' supply, which would be presumably sufficiently large local storage to take care of any temporary rupture of the main Hetch Hetchy conduit system. There is, furthermore, evidence in Mr. Grunsky's testimony (pages 1329, 1335), that the San Miguel reservoir, capable of holding 500,000,000 gallons, could be constructed, and, as a matter of fact, I know the city has that tract under condemnation today for reservoir purposes. This would be about a ten days' supply. So, without disputing the desirability of the Peninsula storage, we can truthfully state that there are other sites which could be purchased if they

desire, for use in connection with the Sierra project. There have been numerous sales of land reported by various San Mateo County witnesses in and around Belmont; and it does not appear that the reservoir possibilities of the land in that locality have affected its market value. It seems to have been sold off pretty regularly for home sites, and presumably always will be.

All the foregoing considerations lead me to urge upon your Honor that no sufficient showing has been made in this case to justify the conclusion which Mr. Grunsky urges on the subject of Peninsula reservoir values. Mr. Dillman has been more frank than he, I think. Mr. Dillman does not pretend to estimate the value to the Spring Valley Water Co., of this reservoir, as a part of this system. He says frankly that he cannot do it, and that the only method of doing it that would occur to him would depend upon the return which the company got from its water business. Counsel infers, therefore, that Mr. Dillman has not testified to market values. In that connection I believe that I can show your Honor counsel is in error. For my purposes it is immaterial whether Mr. Grunsky started out with the assumption that these reservoir lands were worth \$1400 an acre, and then checked his assumption by the methods which he used, or whether he used those methods to arrive at his figure. The effect is the same. His figure must stand or fall upon the reasonableness and fairness of the methods by which he justifies it. Mr. Dillman has suggested two methods by which a fair valuation might be obtained. Mr. Grunsky has suggested but one. Counsel suggests that the second method which Mr. Dillman uses is in conflict with the decision in the Minnesota rate cases. This method of Dillman was to estimate the reproduction cost, as of 1913, of the various parcels included in the reservoir site, based on their probable market value for other purposes, and to add to that a percentage of 25 per cent. to cover demonstrated availability and unification. So far as the percentage goes that is, of course, purely Mr. Dillman's opinion, and must rest upon his assumption that that would be fair. So far as the value of the lands for other pur-

poses is concerned, on a reproduction hypothesis, that, of course, involves the assumption that the company would not have to pay the owners of these lands any more than the market value for other purposes, as ascertained by comparison with the adjacent watershed valuations. Counsel has suggested that this assumption is, in itself, in contravention with the rule in *Boom Co. vs. Patterson*; but I refer your Honor to the recent ruling of the United States Supreme Court in *McGovern vs. New York*, and the other case involving the condemnation of the Ashokan reservoir site, as considerably modifying the extent to which the *Boom Co. v. Patterson* rule may be applied. I shall read to you briefly, from the decision in this case of *McGovern vs. New York*, which is reported in 229 U. S., 363, particularly page 371, the court said:

"It is conceded 'that the owner is not permitted to take advantage of the necessities of the condemning party', and it would seem that it well might be that the commissioners regarded it as too plain to be shaken by evidence, on the public facts, that the value of the land for a reservoir site should not come into consideration except upon the hypothesis that the city of New York could not get along without it, and that its only means of acquisition was voluntary sale by owners aware of the necessity, and intending to make from it the most they could. It is just this advantage that a taking by eminent domain excludes.

"But if the rulings complained of be taken as universal propositions, they present no element of the arbitrary, even if they should be thought to be wrong. The enhanced value of the land as a part of the Ashokan reservoir depends on the whole land necessary being devoted to that use. There are said to have been hundreds of titles to different parcels of that land. If the parcels were not brought together by a taking under eminent domain, the chance of their being united by agreement or purchase in such a way as to be available well might be regarded as too remote and speculative to have any legitimate effect upon the valuation."

I conceive that that is the rule which we must follow if we are going to consider the value of these reservoirs on a reproduction basis, that is, reproduction in the parcels in which

they were originally required. If we do not make the assumption that they are all held in one ownership by a private person, that is the assumption which the court in this case says is altogether too speculative, and if the plaintiff is not to be entitled to the special value to it for this reservoir use, as the decision which I have just read indicates, we are entirely within the ruling of the Supreme Court in ignoring that use in dealing with individual parcels.

THE MASTER—The Supreme Court said that it was the prior owner that was not entitled to the special value.

MR. SEARLS—I understand that, your Honor, but I am speaking now of Mr. Dillman's second theory, which involves the consideration of reproducing these just as Mr. McDonald figured the reproduction of the right of way, the reproduction of any of the existing structures. It involves the assumption that the several parcels were in the hands of the other owners. I will continue my reading of the decision:

"The plaintiff in error was entitled to be paid only for what was taken from him as the titles stood and could not add to the value by the hypothetical possibility of a change unless that possibility was considerable enough to be a practical consideration and actually to influence prices. In estimating that probability the power of affecting the change by eminent domain must be left out. The principle is illustrated in an extreme form by the disallowance of the strategic value for improvements of the island in St. Mary's River in *United States v. Chandler-Dunbar Water Power Co.*, 229 U. S., 53."

In other words, if these parcels were owned by individual owners in 1913, the probability of their being united under one ownership by any means except through the exercise of the power of eminent domain would have been remote and speculative and the Supreme Court has clearly said, in this decision, that the possibility of their being united through the power of eminent domain must be ignored.

Another case, dealing with the same situation, is the case of *New York v. Sage*, which so far as I am advised, is the latest

ruling of the Supreme Court on the subject, and is reported at 239 U. S., 57. The court said, at page 60:

"This is a proceeding for the taking of land for the Ashokan reservoir, similar to the one before us in *McGovern v. New York*, 229 U. S., 363. . . . Upon an inspection of the record it appears to us, as the language of the commissioners on its face suggests, that their report does not mean that the claimant's land had a market value of \$11,948.90—that it would have brought that sum at a fair sale—but that they considered the value of the reservoir as a whole and allowed what they thought a fair proportion of the increase, over and above the market value of the lot, to the owner of the land, subject to the opinion of the court upon the point of law thus raised. Upon that point we are of opinion that they were wrong.

"The decisions appear to us to have made the principles plain. No doubt when this class of questions first arose it was said in a general way that adaptability to the purposes for which the land could be used most profitably was to be considered; and that is true. But it is to be considered only so far as the public would have considered it if the land had been offered for sale in the absence of the city's exercise of the power of eminent domain."

I therefore submit that if your Honor should determine that the valuations placed by the real estate experts upon the adjacent watershed land fairly represent the value of the land beneath the waters of the lake, as of December 31, 1913—and by that I mean the value per acre—then you would be justified in valuing the reservoir land on the basis of that price per acre, and that you would be giving some consideration to the availability of the land, as a whole, for reservoir use, if you adopt the percentage which Mr. Dillman used, and which has not been controverted by any of the plaintiff's witnesses. This second method of Mr. Dillman would, in my opinion, give you something very close to the reproduction value of these reservoir sites, assuming that they were purchased in 1913, in the subdivisions in which the company originally acquired them.

His first method would give the "fair" present value based

on original cost plus probable percentage of increase. It has the advantage of not involving speculation as to character of submerged lands.

MR. GREENE—Mr. Searls, do you think his Honor should take the reproduction cost theory as applied to the land?

MR. SEARLS—We have both agreed he should take it so far as rights of way are concerned.

MR. GREENE—That is hardly an answer to the question. Do you think that that is the correct principle to apply?

MR. SEARLS—I don't see how he can, exactly, in view of the decision in the Minnesota rate case, because if you are going to apply exact reproduction cost, you have to allow overhead percentages and everything else; if you can take a modified reproduction cost and assume that the enhancement in value will take care of overhead percentages in part, then probably you can comply with the Supreme Court's ruling and use it at the same time.

MR. GREENE—From those two cases that you read, do you derive any rule as to valuation which should have been placed on the Ashokan reservoir if it had been owned by a private individual and taken over by the city of New York?

MR. SEARLS—No. I don't think that is the situation here. I don't think that in considering these reservoirs we should assume that they were owned by one private individual and purchased from him by the Spring Valley Water Company. That is even more speculative than assuming that they could be bought in the parcels in which they were originally acquired. If you assume that they were owned by the Spring Valley Water Company, then you run into the obvious difficulty of determining their value to that company, so the rule that you might apply to the Spring Valley lands would be very difficult to apply to the reservoirs.

THE MASTER—Do you understand from what Mr. Dillman suggested that he would say that the lands in the hands of the water company would have a higher value by 25% than in the hands of the owners from whom it was acquired?

MR. SEARLS—I don't think that was the import of his testimony. I think that the import of his testimony was that it would have covered just the point that Mr. Greene has made, in the hands of anybody the land unified, and would that have increased value. On cross-examination your Honor will recall that Mr. McCutchen asked him about the value to the company, and he said that in connection with its system it might very well be greater than that.

MR. GREENE—He asked him about a company, not the company.

MR. SEARLS—Well, a company supplying water to San Francisco.

MR. GREENE—A company supplying water.

MR. SEARLS—To San Francisco, I think.

THE MASTER—The reason I asked was that these two condemnation cases in the Supreme Court that you speak of refer to the value that the land might have unified in the hands of the city of New York for reservoir purposes—the increased value; I am just wondering whether they are going to say that while it is very true that the land would not be paid for to the owners in severalty with any idea of unified value, we must give that unified value when we are considering it as unified, either in a condemnation or in a rating case.

MR. SEARLS—It is not my impression that the court went so far as to say anything on that subject. The question was not before it in the cases that they had. I don't draw any conclusions that that would affect the value of the reservoir unified, and in the hands of either a single person or the Spring Valley Water Company. Looking at it from a reproduction viewpoint, it seems to me the decision does have some bearing.

THE MASTER—This is the language: "The city is not to be made to pay for any part of what it has added to the land by thus uniting it with other lots if that union would not have been practical or would not have been attempted except by the intervention of eminent domain. Any rise before the taking in cost by the expectation of that event is to be allowed,

but we repeat it must be a rise in what a purchaser might be expected to give."

They do not in so many words say that the land unified and as a reservoir in the hands of the city of New York is worth more than it was before, but they argue about it quite a bit. It is a puzzle as to what you would do with that situation in view of what is said in the Minnesota Rate Case. You must remember that in the Minnesota Rate Case they were either considering it on broad lines that could not be tested by strict logic, that is, sort of taking a running jump at fair value and omitted the undoubted cost of acquisition, or else they had a set of values before them to which they could not apply any possible costs of acquisition.

MR. SEARLS—The thought I have in mind is that as a part of the Spring Valley system those peninsular reservoirs are obviously the keystone of the whole system.

THE MASTER—You can say that of any important part.

MR. SEARLS—Well, even more so of that part, and if you could succeed in depriving the company of those reservoirs it would pretty nearly scrap everything they have. In that way, the value to the company is simply inestimable. I don't know how you are going to deal with that here, or deal with minimum value or anything else that does not involve either a logical circle or the very highest degree of speculation.

THE MASTER—Of course, you have to neglect that very essential quality of the peninsula reservoirs, otherwise you are valuing the whole system again in the reservoirs.

o. Alameda County Reservoirs.

When we come to study the application of Mr. Grunsky's theories to the valuation of Alameda County reservoirs the results are further still from corroboration of his contentions.

He testifies (on page 1233) that the value of the Calaveras reservoir site, as of December 31, 1913, would be affected by the indefinite period in which it was to go into use as a reservoir and such that, under the circumstances as explained, the

Calaveras reservoir land cannot have had value greatly in excess of the value of similar lands not available for reservoir purposes.

An application of his 10 to 1 ratio (p. 7882 of the record) shows that the reservoir cost should be apportioned at \$126 for reservoir land and \$12.66 for watershed land. But he states (on pages 7874, 7875) that he did not reach any conclusion relating to the distribution of cost at the reservoir sites of Alameda County between reservoir and watershed lands. It must be, then, that the figure \$200 per acre which he uses for the Calaveras reservoir parcel (1234) is more or less a matter of opinion of the witness, not supported by either analysis or any other figure or by any particular qualifications so far as market value goes. Now he makes this conclusion conform to his statement that the Calaveras reservoir lands cannot have had value greatly in excess of the value of similar lands not available for reservoir purposes (1233) is not apparent, in view of the fact that the average cost of the Calaveras reservoir lands, as shown by Mr. Dillman in Exhibit 132, was but \$58.24 so far as it can be accurately ascertained, while Mr. Gale, who was a witness for the complainant, appraised the Calaveras reservoir lands at an average of \$97.83 (Ex. 29)—

Mr. Greene calls my attention to the fact that Dillman's figures averaged the acreage value of entire parcels while Mr. Gale averaged only the acreage value of the portions of the parcels which were comprised within the reservoir site. I have not figured the average of the city's appraisers' prices for these same lands, but they are probably somewhat less than Mr. Gale's. Clayton's purchases in 1911 of reservoir lands were at a figure somewhat less than Clayton uses in this case, and at about the same figure Mr. Gale uses. Mr. Grunsky's figure, then, is something over twice the real estate value of the land in question. For the San Antonio and Arroyo Valle reservoir sites Mr. Grunsky adds 25%. Mr. Dillman allows 15% additional for the Calaveras site in valuing his reservoir parcels, and adds nothing for the San Antonio or Arroyo Valle;

as he later excludes all these lands, this does not affect the final valuation. On the whole, I think this discussion of the values of the undeveloped Alameda reservoir sites is unnecessary, for I cannot conceive of your Honor's finding any justification for the inclusion of the reservoir values for lands which were admittedly not in use as reservoir sites during any of the years in litigation; Judge Farrington excluded them. I have already discussed the manner in which I believe these Alameda watershed lands should be valued and suggested that an allowance of half a million would be amply sufficient to cover the value of whatever security their ownership by the Spring Valley Water Company affords the San Francisco water supply against pollution or infringement of title. But there certainly is still less justification for including a higher reservoir value for these Alameda County lands which have never been used for reservoir purposes than there would be for including a real estate value.

One other interesting factor which might be considered by your Honor in connection with the reservoir situation is the showing made by Mr. Hazen (on page 7107 of the record) of the relative storage costs of Pilarcitos, San Andreas, and Crystal Springs reservoirs on the basis of the comparative structural costs necessary to effect storage at these three sites. It seems that, using Mr. Hazen's figures, San Andreas storage structures cost one and one-third times as much as Crystal Springs, and Pilarcitos structures cost nearly five times as much as Crystal Springs per million gallons of storage; while the figures of Messrs. Dillman and Dockweiler for the same cost would be less than these, the ratio would probably not differ widely.

THE MASTER—Did he compare it with Calaveras?

MR. SEARLS—Mr. Hazen does not include that Calaveras figure. I thought it was somewhere in the record. Can you tell me whether it is, Mr. Greene?

MR. GREENE—I cannot tell you where it is; my impression is it is in the record, though.

THE MASTER—It is in the record in the shape of cost per million gallons daily.

MR. GREENE—My recollection is that those costs included the cost of real estate as taken from the real estate appraisers. That is what surprised me, Mr. Searls, when you started to give this figure.

MR. SEARLS—Do you mean Hazen's costs?

MR. GREENE—Yes.

MR. SEARLS—Did I say it was the structures only?

MR. GREENE—Yes, you said structures only.

THE MASTER—What conclusion did Mr. Hazen draw from it, if any?

MR. SEARLS—None whatever. He simply stated he included this table as an interesting comparison.

MR. McCUTCHEN—Wasn't the Calaveras cost per million gallons stated in Dillman's cross-examination on reservoir values?

MR. GREENE—He had not made any investigation, he simply made a rough estimate.

MR. SEARLS—Mr. Hazen's figures are shown on page 7107 of the record, and are as follows, and all of them excluded land: "Cost to reproduce, without overhead, no land; cost to reproduce, including overhead less depreciation, no land." It was purely the storage cost that he was considering. Including the overhead he derives \$502 per million gallons at Pilarcitos, \$133 per million gallons at San Andreas, and \$107 per million gallons for Crystal Springs.

THE MASTER—And not including any value for reservoir land either?

MR. SEARLS—No, sir. That is obviously true, because his total for Crystal Springs is only \$2,034,000, whereas complainant's reservoir values were over \$3,000,000 alone.

MR. GREENE—Would you mind restating the conclusion you draw from those figures, Mr. Searls?

MR. SEARLS—The conclusion I draw is that, first of all, you cannot value the peninsula reservoirs on the same basis; and second, looking at it as a reservoir proposition, that Cala-

veras, as a reservoir site, should be more valuable than the peninsula sites, or conversely, the peninsular sites would be less valuable than Calaveras. Mr. Grunsky makes the Calaveras much less valuable than the peninsular sites, or, conversely, the peninsular sites much more valuable than the Calaveras. It would seem that if we allow for peninsula reservoir sites something approaching the value of the land for real estate purposes, that, in itself, would be very much in excess of Mr. Grunsky's Calaveras figures based on water supply value, and therefore the company would not be in a position to complain.

Mr. Hazen's figures also show in the last analysis the only real storage the company has on the peninsula is at Crystal Springs and San Andreas. Pilarcitos is a collecting reservoir but does not figure extensively as a storage proposition, most of the water it collects being transferred directly into San Andreas. When the Calaveras reservoir finally comes into use it ought to be of even greater value than the Crystal Springs as a storage proposition on account of the probable smaller cost of a million gallons of storage, and also on account of the availability of this site as a reservoir for either San Francisco or the East Bay cities. The market for Crystal Springs as a reservoir proposition would seem to be limited to San Francisco alone. Notwithstanding this known availability, if your Honor will examine the Calaveras reservoir purchases made by the Spring Valley Water Co. in recent years, you will find that the cost of these lands was not very high. The same line of reasoning applies to Arroyo Valle and the San Antonio purchases. It is noteworthy that Parcels F-268, J-268 and K-268, which were bought in 1911, are appraised by Mr. Gale for real estate purposes at their exact cost, and that this would indicate that the real estate and reservoir values of those parcels were about the same, assuming that the cost represented the value for all purposes.

So far as the Merced Lakes are concerned, Mr. Grunsky places a more or less arbitrary figure of a thousand dollars an acre on them for reservoir purposes; while the only appraisal

made by the city has been in connection with the real estate value of the Merced tract, the appraisers figuring that whatever value the lake had was absorbed in their valuation of the adjacent lands. Mr. Dillman says, (10,920) that he did not assume any special value for reservoir purposes of the Merced Lakes in summing up his valuation of the properties. It seems to me that this is an example of a case where the reservoir value of these lakes, which are soon to be relegated to the emergency reserve list, is necessarily much less than their real estate value. Their real-estate value having been included by Mr. Paschal in his valuation, we are content to stand on that as being the more generous treatment to afford the company.

MR. McCUTCHEN—What would be the result if you sought to take the lakes only, Mr. Searls, and none of the land?

MR. SEARLS—None of the marginal land at all?

MR. McCUTCHEN—No; would they go for nothing?

MR. SEARLS—I don't think anyone would be so insane as to try to do that.

MR. McCUTCHEN—Well, just a strip of land around the lake; suppose you would only take a strip say 10 feet wide around the margin of the lake.

MR. SEARLS—Why do you want to assume such a speculative proposition as that, which nobody would do?

MR. McCUTCHEN—Suppose that as to a large part of the lake shore you only have a narrow strip; that is to say, suppose you would have a narrow strip all the way around, and you were seeking to take the lakes in condemnation, according to your theory they would not have any value at all, would they?

MR. SEARLS—Why, certainly.

MR. McCUTCHEN—What would it be? The rest of the land would still be there, you know.

MR. SEARLS—You would have to appraise it on the same basis.

MR. McCUTCHEN—Whatever basis you take, according to your theory would result in an almost negligible figure.

MR. SEARLS—I don't think so. I think the value of the land as real estate, if the lakes were not there, would be a very different figure than the one which Mr. Paschal has put upon it.

MR. McCUTCHEN—You don't get my point. The lakes are there, the land is there; the same owner owns the lakes who owns the land; now, supposing you were simply trying to get the lakes, with a very narrow margin, according to your theory they would not have any value at all because the land would have absorbed that value, and the land would still belong to the company.

MR. SEARLS—No, sir. According to my theory, there would be no value to the lakes from a water-supply point of view, because their availability would have been destroyed by the limitations you place upon the margin. From a real estate point of view, the value of the lakes would be whatever you figure the access to the lands gave it.

THE MASTER—Mr. McCutchen assumes, for example, that the decision which this court must render will be determinative for all purposes; that if I take your view and assume that the value of the surrounding lands on a basis including the value of the lakes, and then the city concludes it will take those lots by condemnation and pay practically nothing because I have said in the report that there is nothing there that is not in the surrounding lands, the city thereupon says We will take the lakes.

MR. SEARLS—I cannot consider that the lakes would have any particular value if you were going to destroy them for water-supply purposes; if they could not be used for water-supply purposes any more, then, obviously, the only value you could give them would be for whatever rental value for boating purposes they might be worth. The surrounding land would still have a view of the lake, but the value of the surrounding land would be diminished by reason of its lack of

accessibility to the lake. The water-supply value would be eliminated entirely.

THE MASTER—Mr. Paschal has not valued the lands with any inclusion of accessibility to the lake, has he?

MR. SEARLS—Yes, he has all through his testimony.

THE MASTER—Well, I don't think that is worth very much. I think there is something to be said for the view, but I have not counted that as anything worth mentioning on either side.

MR. SEARLS—We tried very long and earnestly to get some scientific basis for considering what the water-supply value of these lakes might be, and there did not seem to be any basis, except the general consideration that the utility was much less than the real estate value of the land there, and if the land was all flooded, the only scientific method of valuing it, from a real estate point of view was by the method of reflection. That is the position we have taken on that subject.

THE MASTER—What value did Mr. Grunsky find?

MR. SEARLS—He gave \$1000 an acre. This much seems clear: If the Crystal Springs reservoir is worth \$320 an acre, the Merced lakes, from a water-supply point of view, would not be worth anything like that, and from a real estate point of view they have no particular valuation unless it be reflected, unless you want to consider the hypothesis that the lakes are drained in some way, and that the land is put to residential uses. Now, from the company's point of view, if Mr. Grunsky's assumption of \$1000 per acre is a correct valuation on Merced, then it seems very obvious from the discussion here that he ought to have put about \$5000 an acre on Crystal Springs, in order to make his valuation consistent, and about \$7000 an acre on Calaveras.

THE MASTER—Well, you don't want me to do that, do you, Mr. Searls?

MR. SEARLS—I don't want your Honor to do that, no, sir. I am simply showing that you cannot reason on Mr.

Grunsky's opinions at all; they are purely arbitrary expressions; they are not based on any line of reasoning, or any comparative sales, or anything that would justify a conclusion other than that the reservoirs have a value, and that they are valuable properties.

p. Conclusions.

To sum up the reservoir situation, then, from the city's point of view, it is our contention that the peninsular reservoir lands should be valued by taking the average cost per acre of the parcels making up these reservoirs, and expanding them to a value as of December 31, 1913, on the basis of an average annual increase of 5% simple interest or 3% compound; or, as an alternative proposition, we suggest that the lakes could be valued by taking the reproduction cost of the surrounding watershed land as of December 31, 1913, on the assumption that if the lakes were not there the submerged lands could be bought at a similar price, and adding to the product of the reservoir acreage by the average adjacent watershed price per acre thus obtained, a factor of 25% for the value of demonstrated water supply efficiency and unification. The probably superior character of the flooded land from a real estate point of view over the watershed land would be compensated in a large part by the additional value given the watershed land per acre by reason of the scenic advantages arising from the view of the lakes.

Second: That no special reservoir value whatever should be allowed for any of the Alameda lands as they were not in use for reservoir purposes during the years in controversy. No special reservoir value should be allowed for the Merced lakes as that value was probably less than the real estate value and is included in the appraisal of the surrounding watershed.

Finally, we advance as a general proposition the contention that within wide limits real estate and reservoir values are approximately equal, and that our theory of valuation is amply corroborated by the experienced sales of reservoir lands in the

state of California, and by the testimony of all the witnesses who testified in regard to these sales.

The company has failed to show a single instance where they paid more than the real-estate value for any of their reservoir lands. The burden of proof is upon them to show that they did, and the very parcels that they selected for this demonstration show the probable fallacy of their assumption. They were all small parcels, especially adapted for home sites or building purposes at the time of their purchase and necessarily commanding a higher acreage price than the adjacent watershed lands. All that their selection shows is that they paid more per acre for small tracts running down into the Crystal Springs Valley than they did for large tracts extending back over the hills. The Drinkhouse case might have demonstrated something if it had ever been carried to a final conclusion. In the shape in which the company left it it proves nothing.

Having failed to sustain the burden of proof in demonstrating market value for reservoir purposes, in excess of value for other purposes, we respectfully submit that a valuation in excess of the one which the defendants concede in Mr. Dillman's testimony should not be allowed.

MR. McCUTCHEN—Mr. Searls, one other question occurs to me with reference to the reservoirs, that is to say, with reference to Merced. You would say that we are not entitled to any allowance for the lakes in this proceeding because their value is reflected in the value of the adjoining lands; you are contending here that only a very small part or a very small area of Merced was in use during the period in controversy?

MR. SEARLS—Yes.

MR. McCUTCHEN—Then you propose to take the whole use of the lakes, that is to say, the entire value of the lakes here and only give us the proportion which is reflected by the small area of the land which you say is in use?

MR. SEARLS—But we are not depriving the rest of that land of that value; you still have it there.

MR. McCUTCHEN—But how are we being paid for the

lakes, that are being taken and that other land—we still have that other land, it is true.

MR. SEARLS—We don't take that portion of the reflected value; we don't deprive you of it. If you are going to make the assumption that we are going to dry up the lakes then we have to re-value the whole proposition again.

MR. McCUTCHEN—But as I said at first, Mr. Searls, if you just take that narrow strip that we refer to, you are not allowing us anything for the lake.

MR. SEARLS—Well, I differ with you as to that.

V. RIGHTS OF WAY.

The rights-of-way of the Spring Valley Water Company were valued for the company by Mr. A. F. Radle and for the city by Charles S. McDonald, with supplementary testimony as to the individual parcels by Mr. Baldwin for the company and Mr. Smith for the city.

I have included here two tables, numbered 24 and 25, which show the classification of the total figures of the different parcels included in Mr. Radle's and Mr. McDonald's exhibits under the headings of the various classes of lands through which the right-of-way passes so that your Honor can determine the exact amount of difference in the total valuation which is due to the cemetery question or certain rights-of-way being in the public road, which were originally in private property, and so forth. I have not enumerated here the individual parcels, but you will note that the total of these parcels checks with the total of the figures used by the witnesses so that they are all accounted for.

Mr. Radle does not qualify as having purchased any rights-of-way in the vicinity of the Spring Valley properties, or as having any familiarity with the real estate values in that vicinity other than that which he acquired by conversation with land owners. He has had some experience in buying oil pipe line rights of way through the agricultural section of the San Joaquin

TABLE 10
THE EFFECT OF TEMPERATURE ON THE RATE OF
GROWTH OF *Salmonella typhimurium* IN
BROTH AT 20°C AND 30°C

Time (hours)	Optical Density at 540 mμ (20°C)	Optical Density at 540 mμ (30°C)
0	0.00	0.00
1	0.05	0.10
2	0.10	0.20
3	0.15	0.30
4	0.20	0.40
5	0.25	0.50
6	0.30	0.60
7	0.35	0.70
8	0.40	0.80
9	0.45	0.90
10	0.50	1.00
11	0.55	1.10
12	0.60	1.20
13	0.65	1.30
14	0.70	1.40
15	0.75	1.50
16	0.80	1.60
17	0.85	1.70
18	0.90	1.80
19	0.95	1.90
20	1.00	2.00
21	1.05	2.10
22	1.10	2.20
23	1.15	2.30
24	1.20	2.40
25	1.25	2.50
26	1.30	2.60
27	1.35	2.70
28	1.40	2.80
29	1.45	2.90
30	1.50	3.00

1F

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2F.

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TABLE NO. 24.
MAJOR DIFFERENCES BETWEEN RIGHT OF WAY VALUATION OF COMPLAINANT AND DEFENDANT

Pipe Line	Right of Way Through Cemeteries			Right of Way Through Private Property Now Public Road.			Right of Way, Radle Assumed Width; McDonald Used Actual Width.			Remainder of Line.		
	McDonald	Radle	Diff.	McDonald	Radle	Diff.	McDonald	Radle	Diff.	McDonald	Radle	Diff.
Crystal Springs Pipe Line.....	—	—	—	1,040.00	22,018.00	20,978.00	1,691.50	4,438.00	2,746.50	26,630.00	10,896.00	15,734.00
San Andreas Pipe Line..... (San Andreas Res. to College Hill Res.)	5,268.00	123,848.00	118,580.00	—	13,945.00	13,945.00	7,631.70	8,847.00	1,215.30	15,609.60	59,354.00	43,744.40
San Andreas Pipe Line..... (Baden-Merced Br.)	29,961.62	517,357.00	487,395.38	—	—	—	2,000.00	594.00	1,406.00	60,134.40	56,812.00	3,322.40
Alameda Pipe Line.....	—	—	—	—	1,675.00	1,675.00	10,274.70	11,207.00	932.30	20,901.10	21,889.00	987.90
Pilarcitos Pipe Line..... (Pipe Line and Flume W. of San Andreas Valley.)	—	—	—	—	—	—	1,125.00	1,125.00	—	20,542.25	38,965.00	18,422.75
Crystal Springs Pump Flume.....	—	—	—	—	—	—	5,004.00	5,004.00	—			
Lake Honda Supply Main.....	—	—	—	—	1,538.00	1,538.00	10,200.00	24,170.00	13,970.00			
Total	35,229.62	641,205.00	605,975.38	1,040.00	39,176.00	38,136.00	37,926.90	55,385.00	17,458.10	143,817.35	187,916.00	44,098.65

This table does not take into account differences on R/W not in use.

TABLE NO. 25.

COMPARATIVE TABLE SHOWING TOTAL R/W VALUATION OF
COMPLAINANT'S AND DEFENDANT'S WITNESSESWith Defendant's Deductions for Not Used or Useful and Duplicated Values
(Dillman Ex. 213) and Net Value.

TOTAL VALUATION	McDonald	Randle	Diff.
.....	272,730.00	976,868.	702,828.91
R/W Not in Use			
Havenwood Richmond	35,418.75	31,249.	
Balden Rts of Way	3,950.00	3,950.	
25' Strip—Niles Centerville	5,349.60	4,022.	
8' x 11' Strip Centerville	509.00	509.	
17' R. W. East of Niles	1,065.00	3,130.	
60' R. W.—S. of Cypress Lawn	2,405.37	2,184.	
Total not in use (Dillman Rating Base)...	48,697.72	45,044.	3,653.72 McDonald Greater.
Value R/W in Use	224,032.37		
Induct duplications in value allowed as real estate in S. F. & Ala. Co.s. See Ex. 213, Table IX.			
C. S. P. L.	14,863.60		
S. A. P. L.—M.—R.	1,729.00		
P. P. L.	60.00		
A. P. L.	873.70		
	17,526.30		
Net Value of R. W. (Ex. 213)	\$206,506.07		

Valley through vineyards and farm property. Previous to that his experience was in the Eastern states.

Mr. McDonald has never bought any pipe line rights-of-way, but has had extensive experience in the acquisition of railroad rights-of-way in the Niles Canyon in the immediate vicinity of the Spring Valley properties, and is also thoroughly familiar himself with the value of the Spring Valley real estate through a study of adjacent sales and real estate values in general, both in Alameda and San Mateo County. His valuation is set forth in Defendants' Exhibit No. 169.

It would be a needless expenditure of time to take up the items in detail, and I shall proceed to note only the main difference in principles of valuation which caused the wide divergence between the total figures of Mr. McDonald and of Mr. Radle.

I might state as a preliminary that the witnesses were practically in agreement as to the basic land values through which the rights-of-way passed.

1. Assumptions of Width.

The first of these principal differences seems to have arisen from Mr. Radle's assumption that wherever no width was named in the deed, that a width of 25 feet should be assumed for computation purposes. Mr. McDonald assumed the width which the company had actually acquired in the adjoining parcels, having found by an inspection of the deeds that various parcels had been acquired in fee or with an exact width, while other adjoining parcels did not have any width specified. There is a question of law there as to what interpretation should be given by the court as a reasonable width for the company to use, assuming that the rule of "reasonable width" governs where no width was specified. It would seem to me that any court would be convinced that where the company had only purchased 10 feet across a given tract, and had paid a similar price for the unnamed width against an adjoining tract, that the company's election as to the width that it should buy

would have a very persuasive influence in determining that width.

In that connection the Supreme Court of this state, in the case of *Winslow v. The City of Vallejo*, 148 Cal., 723, passed upon the question:

The City of Vallejo had for some years owned and operated a water system for the purpose of supplying the city and its inhabitants with water. The water was impounded in a reservoir situated in Solano County and was thence conveyed with a 10-inch iron pipe line to the City of Vallejo, distant about 14 miles. The pipe line was laid about nine years before the commencement of the action, and in its course passes through lands of various property owners, including the plaintiff. By reason of the growth of the city the 10-inch main had become inadequate, and the city had undertaken to lay an additional pipe 14 inches in diameter which it was about to run across the plaintiff's lands, within 3 feet of the 10-inch pipe. The latter was laid under an agreement of a right-of-way from the then owners of the land to the city and, upon the plaintiff seeking an injunction against the city, the question was whether the grant, taken in connection with the facts above stated, gave to the defendant the right to run a 14-inch main through the lands of the plaintiff over a route outside of and in addition to that occupied by the 10-inch pipe line. The lower court granted the plaintiff an injunction. The Supreme Court of California said:

"Section 806 of the Civil Code provides that the extent of a servitude is determined by the terms of the grant or the nature of the enjoyment by which it was acquired." In the present case the easement or servitude was acquired by grant, and we must therefore determine its extent by looking to the terms of the grant. But the conveyance is general in its terms and affords no basis for determining the number of pipes, their size or their exact location. What is granted is the right-of-way for 'any water pipes or mains which may be laid by the city,' such pipes to be covered by not less than 11-2 feet of ground, and to be

'Laid and maintained on present surveyed line as near as may be'. The rule is well settled that where a grant of an easement is general as to the extent of the burden to be imposed on the servient tenement, an exercise of the right, with the acquiescence and consent of both parties, in a particular course or manner, fixes the right and limits it to the particular course or manner in which it has been enjoyed.

"We see nothing in the language of this grant, or in the conditions existing when it was executed, to indicate that it was intended to give the defendant the right to increase from time to time the number of pipes laid. * * * It might with equal force be urged that inasmuch as there was no limitation on the size of the pipe to be laid, the defendant might at any time replace the 10-inch pipe with one of twice or three times the diameter. Such view is entirely inadmissible under the authorities cited above. It is true, as urged by appellant, that the parties to the grant, knew that the right-of-way granted was for the purpose of a municipal water supply, and they may have contemplated that with the growth of the city, additional means of conducting water to it might be necessary. It by no means follows, however, that the grantors, in conveying a right-of-way for water pipes over their land, intended to burden that land with an easement the extent of which could never be definitely ascertainable, and which might be enlarged again and again, as often as the growth of the city of Vallejo might make it necessary to extend the operations of the water plant.

"We think, therefore, that the construction given to the conveyance by the lower court was correct, and that 'It is elementary that the location of an easement of this character cannot be changed by either party without the other's consent, after it has once been finally established, whether by the express terms of a grant, or by acts of the parties tantamount in their effect'."

THE MASTER—The width of the easement was not stated there?

MR. SEARLS—No, but it was practically determined by the act of the parties in laying a 10-inch pipe in the ground in question.

The Spring Valley Water Company has laid pipe of a

certain size within this right-of-way and in the adjoining property they have determined themselves that 10 feet is a sufficient width to enable them to lay and maintain that pipe. We think that applying the reasoning that was contained in that case as to the effect of the company's own determination by its acts of how much land it needed would be conclusive as to the amount to which it was entitled.

A similar situation arose in the valuation by the Railroad Commission of the North Coast Water Company, reported in 6 Cal. R. R. Comm. Reports, 606, also in Public Utility Reports, 1915 C., 474, 484. The Commission said:

"The water company owns and utilizes certain private rights-of-way for pipe lines extending over a distance of approximately 41-2 miles. The only evidence with reference to the value of these rights-of-way was presented by Mr. Sloan, who made an estimate of \$7,720.00. This estimate was based on the value of the fee of adjacent property without severance damage. The water district challenges the estimate on the ground that it assumes a width of 10 feet in most cases and 20 feet for the Belvedere pipe line, whereas the water district contends that the width as valued should be confined to the actual width of the pipe. It seems clear that a width must be allowed in excess of the bare width of the pipe, but there is some doubt as to whether that width should be as much as ten feet, unless the water company actually owns an established width of 10 feet or more."

MR. GREENE—As you know, Mr. Searls, Mr. Olney took that subject up for our side of the case. This is the point that occurs to me: if you take, for instance, the 44-inch Pilarcitos pipe coming into the city, or the 54-inch Alameda pipe, a 10-foot right-of-way would not be actually large enough to dig that trench; it seems to me that the court has to take those facts into consideration. I think there is force in your suggestion—I concede that and I think Mr. McCutchen does too, but it has not any universal application—I think it has to be judged on the facts of each case.

THE MASTER—Is this schedule correct when it states that the difference between the two valuator's on that account is \$17,500?

MR. SEARLS—I presume it is.

THE MASTER—Well, I don't think that I can get that near being right anyhow.

Thursday, August 31, 1916.

MR. SEARLS—Again, Mr. Radle has assumed a 25-foot width in a great many places within the San Francisco County boundary where the company never acquired any right at all. Counsel has murmured something about prescriptive rights, due to the length of time that the pipe has been at its present location, but he has not placed in evidence any of the other assumptions necessary to show prescription right such as knowledge of the overlying land owner that the pipe is in there. On the other hand, Mr. McDonald testifies (8667) the lots were purchased in most cases without the owner knowing the pipe line was there when he was purchasing. Mr. Radle states (8561) that he did not make any particular investigation to the company's title at all. His assumption appears to have been that if the pipe was there the company had the title by prescription for all purposes necessary for use in the right of way. Mr. McDonald flatly contradicts him on a number of parcels, showing that the company's title was far from being clear. It appears that Mr. Radle even ignores the company's own declaration of ownership which limited the width of certain parcels to 10 feet (8579), showing the company's own opinion as to the extent of its rights.

Counsel called my attention on yesterday, I think it was, to the statement that the owner of the land could not compel the company to remove the pipe if it were once in there, and hence that their right of way should be valued. If that is the case, then clearly it should not be valued on the same basis that a fee simple or a right of way, the title to which could not be attacked, should be valued because they might have to pay conceivably some considerable sums of money at one time or another in order to be able to maintain the pipe in its present location. The mere fact that they could not get

an injunction does not make the right of way as valuable as it should be if this onus were not placed upon it.

MR. GREENE—You agree with us, though, Mr. Searls, that under no circumstances, the pipe having been actually installed and used, could it be removed by the owner of the land? There is no question about that, is there, as a legal principle?

MR. SEARLS—I think there is this difference: the cases to which you refer, and also the case which Mr. McCutchen cited in his discussion on water rights the other day, show that where the pipe has gone in with the acquiescence of the owner, and that the owner has let the company go ahead and devote the property to a public use, that then the rights of the public are such that he cannot intervene and secure the removal of the pipe or secure an injunction against its use; but where the company goes in without the owner's knowledge and installs and maintains a pipe, or pumps water from beneath his land, or something of that sort, I do not understand that the cases go as far as to hold that he could not enforce its removal. There has to be some shadow of an acquiescence on the part of the owner of the property. I think that rule was clearly expressed in the Madera case to which counsel referred. I will discuss that later in connection with water rights.

MR. GREENE—You ought also to take up the Guernsey case from the State Supreme Court.

MR. SEARLS—I do not think I know that case; what is it?

MR. GREENE—It was a case that came from up at Redding. The decision was written by Justice Melvin. It is said there that the public interest having intervened, that the question is one of public interest and not of acquiescence.

MR. SEARLS—I know there are a large number of cases relating to railroads, saying that where a railroad has built its line over a right of way and the owners have stood by and have not taken proceedings to protect their rights before the company went in there, and had actual knowledge that it was going in, or constructive knowledge, that then that rule has been held to apply. I have not yet found any cases that made it apply where the owner had no knowledge, and in the nature of things could not have any.

MR. McCUTCHEN—In the Barton-Riverside case, the three water companies defendants were engaged in sinking wells in what was known as the San Bernardino Artesian Basin. I do not think it can fairly be said that those land owners knew that the effect of the operations of those wells would be to lower their water-planes, but they did know that the three companies were driving the wells into that basin. After the wells were driven and the companies had begun to transport water elsewhere they sued and the Supreme Court held that it was too late for the land owners to obtain preventive relief, that they might have an action for damages if they were really suffering any damages, but that the rights of the public having intervened it was too late to prevent the water being withdrawn for the benefit of the public.

MR. SEARLS—Did that go to the withdrawal of water in the excess of the amounts that had already been taken?

MR. McCUTCHEN—The claim made by the land owners was that it resulted in preventing their getting any water at all.

MR. SEARLS—I think I had better leave a discussion of that until I come to a discussion on water rights.

As Mr. McDonald explains (8646-7), he assumed that when the pipes were originally installed, and at such times as when it had to be installed and repaired, it would be necessary for the company to acquire temporarily a little greater width than that included in its right of way, but such extra requirements would be merely temporary and at very long intervals, showing no particular justification for an assumption that more than the width that the company had seen fit to purchase in other places should be considered as reasonably necessary. Of course, Mr. Hazen advises a hundred feet in width when possible, and never less than twenty-five; but I do not think we are concerned with what Mr. Hazen thinks would be necessary, but rather with what the company has got. If the company erred in the selection of too narrow a right-of-way, it certainly is no justification for valuing a wide one.

I will not read to your Honor any further cases on that subject, but there is one sentence from the case of *Jennison v. Walker*, 11 Gray (Mass.), 423, which I think states the principle involved:

"When the right granted has once been exercised in a fixed and defined course, with the full acquiescence and consent of both parties, it cannot be changed at the pleasure of the grantee."

The difference is a small difference between the witnesses in cases involving this principle.

THE MASTER—You referred to the question of title to part of the right-of-way; does the record show anything in regard to the McEnerney title?

MR. GREENE—It shows that those suits are still undetermined and pending.

2. Formerly Private Property—Now Public Road.

MR. SEARLS—Another point of difference between Mr. McDonald and Mr. Radle was in the matter of allowing for rights-of-way through land which was formerly private property, but which is now on a public road or street. The company has valued these rights-of-way as though they were through private property. Inasmuch as they could be reproduced in 1913 for no cost at all by reason of their location on a public highway or street, there seems to be no justification for including any value.

I am aware that counsel disagrees with me on that subject, but I think, in view of the law as it existed in this State during most of the years in controversy, and in view of the decision in the Russell case with respect to extension of lines which were already laid down, and in view of Ordinance 2209 of the City of San Francisco respecting the rights of companies to lay pipes, which was passed after the Russell decision, and was passed expressly for the purpose avowed in the ordinance of avoiding any question as to the rights of competitors to come in if they wanted to, that the supposition that the company would have to pay for franchises in the public streets within San Francisco or on the State highways outside of San Francisco, is hardly justified by the law that was then in effect. Mr. McDonald, however, acting under my instruction, included the original cost as a matter of equity to the company. On the other hand, where the pipe line was originally laid through lots and houses were built over it, the situation was much

the same as in the case of paving over mains,—the company did not own the houses, and no value should be allowed for damages or the cost of removing said houses. As a matter of common sense, in reproduction the company would not attempt to buy its way through thickly settled districts, but would use the streets. The same situation arises where the company paid nothing for its rights-of-way, and streets were subsequently laid out over the pipe line. In that case nothing was allowed for the value of the rights-of-way.

3. Rights-of-Way Just Inside of Property Lines.

There was one instance I recall where the pipe line was laid a few feet away from the edge of the street and underneath a hotel, at least underneath the porch of the hotel. It was simply inconceivable in common sense that a line in being relaid would be relaid in that exact location. While this may not be strict reproduction, it has considerable bearing on the real estate value of the right-of-way.

A somewhat similar situation arises along certain avenues in San Francisco, among them San Jose avenue, where the pipe line runs just outside or on the edge of the property line. If your Honor will look at the maps of the pipe line rights-of-way, as shown in "Exhibit No. 8," you will note the fact that it would have been entirely possible to lay that pipe line in the street originally if it had existed there, and as Mr. McDonald stated (8628-29) he was influenced in his appraisal by the fact that the value of the right-of-way which the company now has would not be any greater than the value of the right-of-way if immediately adjacent and parallel to the street which was apparently laid out after the pipe line was put down, and slightly deviates from the pipe line in places. This conclusion we submit is entirely reasonable. There is such a thing as carrying reproduction cost to absurd limits, and where the relaying of pipe a few inches or a few feet, without any cause and without material lengthening the pipe line, as it is perfectly obvious from an inspection of these maps, does not seem to be any reason for giving this right-of-way the value of the private property.

THE MASTER—Does the right to lay pipe in the streets depend upon the law as declared in the Russell case or on this ordinance that you speak of?

MR. SEARLS—On both, as I understand it. The Russell case held that where a company already had a franchise and was operating under it, that it could make the needed extensions to continue its obligation of serving the public without the necessity of complying with the restrictions which might be imposed by the Board of Supervisors, the amendment of November 10, 1911, and Article II, Section XIX, of the State Constitution having provided that franchises should be exercised only on such terms as the Board of Supervisors of the various counties should prescribe. The Constitution before that did not have that limitation. The companies then took the position, which your Honor will recall was taken in the Electric and Gas cases before you, that by reason of having their lines installed before the amendment took effect, that they had a franchise that was of value as against any company subsequently coming in. To obviate that so far as underground construction was concerned this ordinance was adopted by the Supervisors of San Francisco so that competing companies would be in the same position as companies which were already in the field.

THE MASTER—Did I express any opinion on that situation in any of those reports? I did not allow any value for franchise.

MR. SEARLS—I think your Honor did refer to that. It occurs to me that possibly I have no right to refer to that ordinance as a matter of judicial knowledge. I think that the rules of evidence may require the introduction of that ordinance into evidence.

MR. GREENE—There is no objection on our part, Mr. Searls.

THE MASTER—I suppose I should have judicial knowledge of the ordinance, but I don't know whether I have or not; I know that I have no actual knowledge of it, and in case it is to be used I should be supplied with it. All that I had in mind, Mr. Searls, was this: As to the permanency of the right, if it depended upon an existing ordinance during the period that we are considering your argument would apply, that is, if we were reproducing it at that time and the law was that it could go in the street just as well as outside the street there would be a point to be considered there; but if that ordinance could be repealed it is obvious that the right-of-way on a private line, on private property, would have an advantage.

We can hardly conceive of property fluctuating and having value or not having value according to whether an ordinance is in effect or has been repealed.

MR. SEARLS—Senator Cutten is making that point against me before the Railroad Commission now. The fact remains that the ordinance was not repealed during the years in controversy. If we are going to make the hypothesis that the company was not there, and that they are reproducing the property, it seems to me it is fair to take into account the existing condition of the law. Of course, if the company was there it would have the right irrespective of that ordinance to extend its pipes and its service, under the decision in the Russell case. That is the difficulty in the situation.

THE MASTER—It is simply a case of running up against a practical difficulty due to the theoretical nature of your hypothesis. I don't know to what extent you can strain reason by applying a theory.

MR. McCUTCHEN—What was the date of that ordinance, Mr. Searls?

MR. SEARLS—I guess that was in 1914, Mr. McCutchen.

MR. GREENE—Yes, that is my recollection of it.

MR. SEARLS—Yes, it was in 1914.

THE MASTER—And there was nothing prior to that in the nature of ordinances?

MR. SEARLS—No. The State Supreme Court had held that the amendment to the constitution was valid and it would apply even to the extension of the company's system.

MR. GREENE—And would prevent any such extensions?

MR. SEARLS—They could prevent it if they wanted to impose restrictions. As a matter of fact, no restrictions have been imposed in this city as against an underground service.

MR. GREENE—I think you are wrong about that. There was a charter provision which prevented a utility such as a water company from tearing up the streets for the installation of mains. I know about that because I had occasion to take up the question.

MR. McCUTCHEN—And furthermore, you adopted an ordinance requiring inspection and the payment of fees for permits,

and so on. It was quite onerous. That was done away with, however, later on.

MR. SEARLS—That was a police ordinance regulating the opening of streets in the city; that was not a franchise ordinance.

MR. McCUTCHEEN—My recollection is that that was done away with later.

MR. SEARLS—No, that is still in effect.

THE MASTER—What is the citation of the Russell case?

MR. SEARLS—I cannot recall it offhand. The title of the case is *Russell v. Sebastian*. Any way you take it, it seems to me the proposition goes to the whole question of franchise. Under no circumstances would the cost of a franchise in the street be considered as a right-of-way cost. If you are going to value a franchise over two or three blocks, as you are in effect doing by allowing the cost of reproduction through a private lot, you may as well consider the same situation all over San Francisco. You would not be consistent if you limited it to those two or three streets. I never heard of any franchise being valued on the basis of what it would cost to go through the adjacent private property. These rights-of-way would obviously have to be acquired a long time prior to 1912 or 1911, in order to enable the completion of the plant by 1913. If that were done the company would only have to deal with the constitution as it was prior to the amendment on October 10, 1911, and no franchise would be necessary.

MR. GREENE—Of course, the trouble from our point of view is that you are not valuing the actual right that the company has.

MR. SEARLS—I am not valuing what it would cost to reproduce that exact piece of land—it is not a piece of land you own, it is an easement; but I am valuing that easement from the standpoint of the value of a similar easement in the public street.

MR. GREENE—But not on the basis of the value of surrounding property, as the Minnesota Rate case does.

MR. SEARLS—I think I am. I am valuing it on the basis of the street itself. This is not the value of a fee simple title to a piece of land; you have not got that.

MR. GREENE—In some cases we have.

MR. SEARLS—Not when it is inside the line of the street. That is the particular question that is involved here.

MR. GREENE—Of course, in that particular case you are right. The Russell case, your Honor, was decided April 6, 1914. The citation is 58 Lawyers' Ed., 912.

MR. SEARLS—I want to call your attention to another thing, and that is, where you have laid the pipe just inside the property line the cost of maintaining it would be very much in excess of what the cost would be of maintaining it in the street. You have to go under buildings and sidewalks and you have very considerable damages to pay every time you want to replace it. I think that affects the value also.

Now, the same rule applies to the location just inside the boundaries of Balboa Park. In 1913 it would have been impossible for the company to buy a right-of-way through the public park, although a permit might have been granted by sufferance of the Park Commission, as was done in the case of Golden Gate Park, permitting the company to lay the line across the park for nothing. Here again we submit there is no justification for valuing the pipe line in that location on the basis of adjacent lot values, because in reproduction the pipe would be laid in the street or under a gratis permit granted by the commission. The company could not buy it and the commission could not sell it,—it would not be within their power.

The case I referred your Honor to yesterday, *Van Dyke v. Geary*, 218 Fed., 111, dealt with a situation somewhat similar in the town of Miami, Arizona, and on page 124 the Court said:

"It is next claimed that complainants are entitled to an allowance of \$43,884.34 on certain strips of land in Miami from 2 to 4 feet wide through and upon which the water mains and lateral pipes of the system are laid, and other strips of like width so located and reserved for future use in the laying of pipes. These strips seem to have been acquired by Ida A. Van Dyke by purchase from the townsite company. Pretermittting any consideration of the right of that company to thus dispose of any part of the streets in Miami, it is certainly true that these strips could be of value, so far as this case is concerned, only as a means of extending the pipes. It could have no value as

residence or business property, for it was in the streets, and subject to the servitude of public passage, and no structure could be placed on it which would interfere with the right of the public. We think the corporation committee committed no error in rejecting such claim."

That would go to the question of the right-of-way in a public road which was formerly private property.

THE MASTER—Those cases have not been valued here, have they—in cases where there was formerly a private easement and it became a public road? I thought Mr. Olney withdrew the value for that?

MR. SEARLS—No, he did not. We allowed the original cost as a matter of equity to the company.

THE MASTER—In cases where it is actually now in a public street?

MR. SEARLS—Yes, your Honor. Mr. Olney claimed that the company had something better than a franchise in that street and it should be valued on the basis of adjoining property. The principle is just the same, to my mind, as that of the pipe line which is just inside the property line. If you are going to allow a valuation for it it ought to be done as a franchise and not as a private right-of-way, because in reproduction the street is there, and that is the only way it could be reproduced. I can find no justification in the record in this case or in any law existing for assuming that the company would have to pay anything for the franchise.

4. Rights-of-Way Through Cemeteries.

A very large difference between the valuation of the witnesses is by reason of the fact that on the San Andreas pipe line exists by reason of the fact that it passes through some cemeteries. Mr. Radle has placed cemetery lot values on the right-of-way, and Mr. McDonald has assumed double the value of the land without cemetery use, computed on a 20-foot width, except there the company actually purchased the right-of-way after the cemetery was established, and there he allowed the original cost.

THE MASTER—Were there cases where the company bought a right-of-way through an existing cemetery?

MR. SEARLS—Yes, your Honor; they did at Cypress Lawn and at Mt. Olivet.

All of those purchases were made in recent years. Mr. McDonald checked his valuation by figuring the additional cost of building the pipe line around the cemetery on the public highways, using figures introduced in evidence in this case by the engineers—

THE MASTER—Which engineers?

MR. SEARLS—I think it was the defendants' engineers—and determined that his allowance was more than sufficient to cover the cost of cemetery use, plus the added cost of building the pipe line around the cemetery. It seems to me that this check demonstrates the fairness of his allowance. It does not appear where the company bought the rights-of-way through Cypress Lawn Cemetery that they paid any cemetery lot values for them, and there is no reason for thinking they ever would pay cemetery lot values in the case of reproduction. The cemetery association would do one of two things: They might refuse to sell at all, in which case the company would not have the right of condemnation; or they might determine how much the company could afford to pay rather than go around the cemetery, and charge them a little less than that. I cannot imagine they would succeed in getting any higher a price than that because that factor would undoubtedly control the amount which the company would be willing to pay. If the cemetery associations were willing to sell they would appreciate that limitation.

Mr. Radle's method of valuation shows the ridiculous extremes to which the reproduction theory may lead us, unless some rule of reason is followed in its application. I therefore make no apologies for inconsistency in a case like this. There seems to be practically no dispute between the two witnesses as to the value of adjacent land, Mr. McDonald in some instances being higher than Mr. Radle, and it appears impossible to determine where their difference in estimating damages occurred. Mr. McDonald has been accustomed to value rights-of-way and to purchase them without separating the damage element from the value of the property, although he testifies

(8688) that the elements of damage were always considered in reaching the figures of settlement with the owner. There are some disputes over the damages resulting from erection of trestles over marsh lands, which I am willing to let your Honor decide on reading the record. But the most inconsistent thing that Mr. Radle has done in his valuation, from the standpoint of logic, is to value the right-of-way through city lots at lot prices reduced to an acreage basis, without any deduction for streets, and then proceed to value the right-of-way through the streets in addition.

THE MASTER—That is what I had in mind, that there was a modification of the position on that.

MR. SEARLS—Mr. Olney made a statement that I don't recall that any adjustment was made in the figures.

MR. GREENE—I think it was either made directly in the figures, Mr. Searls, or by Mr. Olney's concession when that subject was up, because it appealed to us that your point was well taken.

MR. SEARLS—It does not appear in Mr. Hazen's rating base.

MR. GREENE—Mr. Hazen simply took an arbitrary \$500,000. Of course, you appreciate that he went on the stand before Mr. McDonald or Mr. Radle testified. Mr. Sharon informs me that it is out of Mr. Metcalf's rating base, though.

MR. SEARLS—Then I need not go any further in the discussion of that point, except to note that the original principle was to reflect the value of the streets into the lot and then value the right through the streets over again.

I believe that the foregoing are the principal points of difference in the right-of-way valuation. Necessarily, the damage element has been largely a matter of opinion on both sides; but aside from whatever difference may arise from that respect, it seems to me that Mr. McDonald's valuation satisfies every requirement of equity and justice to complainant, and at the same time does not involve the violent speculation or wrong hypotheses upon which Mr. Radle has founded so many of his high figures. I think your Honor will be entirely justified in accepting Mr. McDonald's valuation as a whole.

You will find the final adjustments for the rights-of-way as we have used them in Mr. Dillman's Exhibit No. 213 and in the second

of the tables which I handed you on this subject showing the exclusions of rights-of-way which are not in use, and I do not think there is any dispute with the company about that. They have not included the Ravenswood-Belmont right-of-way in their rating base; and also the exclusion of certain rights-of-way to tracts which were valued in fee. Mr. Olney made the statement on his argument that Mr. McDonald had only appraised a 10-foot right-of-way through the lots in San Francisco. I wish to controvert that statement by reference to Mr. McDonald's exhibit, which will show that he did appraise the full value of the lot in the Abbey Homestead; that he accepted Paschel and Baldwin's valuation of lots in the Reis Tract (8506) and on the Baden-Merced right-of-way (page 17 of his Exhibit, Serial No. 18), he appraised the lots in there; in the Vista Grand Tract the lots were not appraised; in the Mission Tract (page 11 of his Exhibit, Serial 60) the lots were appraised.

MR. GREENE—As to those lots that you have just referred to, Mr. Searls, the company owned the entire lot.

MR. SEARLS—We allowed the entire value of the lot.

MR. GREENE—That is conceded by your engineers; that is not an appraisal by Mr. McDonald of the right-of-way through property that we do not own. That point ought to be made clear.

MR. SEARLS—I think that is what Mr. Olney was referring to, Mr. McDonald's valuation of the right-of-way through those lots.

MR. GREENE—There was no purpose of valuing a right-of-way through a lot it is conceded we own, and the utility of which is conceded.

MR. SEARLS—I thought he was accusing Mr. McDonald of valuing a right-of-way through that lot, so that the rest of the lot might be excluded.

MR. GREENE—No.

MR. SEARLS—So far as lots you do not own are concerned I fail to see, under the Vallejo case I cited yesterday and the Massachusetts case I cited this morning, how you can possibly claim the right to that entire lot. You acquire an easement through it, you have exercised your easement and indicated the limits of your easement by the size of the pipe that you put in there; a 54-inch pipe

line is less than 5 feet in width, and if we allow you a 10-foot right-of-way through that lot it would appear that we have allowed you more than twice the width of the pipe which is laid in the street. I think that closes my discussion on rights-of-way and I think it places in issue the differences on the rights-of-way question:

VI. WATER RIGHTS.

1. Character of Spring Valley Water Rights.

I now approach a branch of the case which, from the standpoint of the valuator, seems to furnish the greatest tangle of thought,—what is the value of the water rights of the Spring Valley Company? Before attempting to answer by reference to the testimony of any particular witness, it would seem necessary to determine first what is to be valued in the way of water rights. Witnesses for the plaintiff have suggested a very simple and advantageous method, from the plaintiff's point of view, of taking the total average daily yield of the plaintiff's system as the measure of these rights, and assuming that this is what is to be valued. A closer study would seem to indicate, however, that the problem is not so simple as that. It is true that we are seeking to value all the elements of the property which the plaintiff possesses in its water works, but in justice to the rate-payers we must avoid any duplication of value. If, for example, as I am confident I shall be able to show your Honor, plaintiff's water rights were in some cases nothing more than part and parcel of the soil, not requiring anything further than ownership of land to enable plaintiff to collect, store and transport water, and as all of that land has been valued at its market value, there isn't any reason for separating the right to take water from that land from the real estate itself in valuing it separately. It seems to me that a water right for the purpose of valuation in this case is something different from the mere right to take water from the land and divert it for sale in San Francisco. The rights which we wish to value are the rights which exist separate and apart from ownership in the land as against all the world, and in particular as against other owners of other lands, to take and divert water which might otherwise be owned or taken by other persons.

The United States Supreme Court, in the San Joaquin & Kings River Canal case, 233 U. S., 454, to which Mr. McCutchen referred your Honor, held that water rights are private property and must be valued, thereby setting at rest the contention which had long been advanced by defenders of rate-making bodies, that the appropriation of water for use and sale to communities was in itself a dedication of the water to that use and also of the right to take and divert it, and that having made such a dedication, the water right belonged to the public rather than to the utility which had appropriated it.

If your Honor will read the report of the Master in the Denver Rate case you will find that that was the contention advanced by the city in that case. I am entirely satisfied that that contention has been overruled finally by the Supreme Court of the United States. The Supreme Court, however, did not say how such a water right should be valued, and the water rights which it held in that case were to be valued were very different from those which are presented here. In the San Joaquin case there was a typical appropriation of the waters of the San Joaquin and Kings River as against the owners of riparian land and other appropriators both above and below the point of diversion.

The Board of Supervisors of Stanislaus County, having omitted any valuation for water rights from their appraisal for rate-making purposes, the case was taken to the Supreme Court and the question alone as to whether this element should have been included was considered. Justice Holmes held in his opinion that it should be included. In that case no valuation whatever had been made for water rights, nor had all the lands riparian to the stream been valued, for the reason that the company did not own them. I think it may be very safe to assume that if the Canal Company had owned the entire watershed of these rivers, and all the land had been valued in the rate-making proceeding, that the Court would have found no justification for including an additional value for the water rights.

So far, then, as the company's right to take and divert water exists solely by virtue of the ownership of the land and structures necessary for its collection, storage and diversion, we submit that

there is nothing further to be valued. It is merely the crop—the product that the company derives from the property. So far, however, as the company's right to divert depends upon other circumstances than the ownership of such lands and structures, a different question arises. Where it is necessary to acquire from all the riparian owners below the diversion point the right to divert the water, something additional exists, something that is not appurtenant to or a part of the ownership of the lands and structures or their value; and it is this additional element that we have sought to value in the case. In order to value it we sought first to ascertain what it was, where it existed and how it was acquired.

2. Water Rights at Lake Merced.

Starting with the San Francisco end, we find the situation at Lake Merced. The company owns all the land surrounding the lake, and nobody could possibly interfere with the plaintiff's appropriation and diversion at Lake Merced. It is a part of the real estate, and has been valued as such. The right to take and divert that water was valued by Mr. Paschel when he valued the marginal land surrounding the lake at the figure which has been included in the city's final appraisal. With the ownership of the lands Mr. Paschel has valued the company would be able, without possible interference from any other person, to divert and sell the waters of those lakes. The land has been appraised at its full market value for residential purposes. In making his appraisal Mr. Paschel states that he has not considered it from a water-supply point of view. He has simply valued the land as it lay, with a view of and access to the lakes, for what it would sell in the market.

MR. GREENE—Mr. Searls, that includes Parcel 25, does it not?

MR. SEARLS—No.

MR. GREENE—Mr. Paschel did include Parcel 25 in his valuation?

MR. SEARLS—A portion of it.

MR. GREENE—The portion of it through which the outlet originally ran from the lake?

MR. SEARLS—Yes, certainly.

Mr. Dillman testifies that the value of the lakes as a storage proposition is less, in his opinion, than the real estate value.

Now, if instead of selling those lands off as real estate, the company elects to use them for water-supply purposes, and to sell the water—which is the crop the land produces—for domestic uses, that is its privilege. But it is an alternative use to the real estate use, not an additional use. They cannot hold and value that land for real estate purposes, or sell it for real estate purposes, and at the same time use the water for domestic purposes. The two uses are irreconcilable.

I have been referring in all this discussion, of course, to merely the portion of the land which we concede to be used and useful. The water supply in the lakes comes from springs. With the ownership of the land the company is entitled to the product of those springs, and nobody can prevent this diversion and use. Such being the case, there is not the slightest justification for separating the right to take this spring water which comes up in the lakes and valuing it separately. The right is included in the ownership of the land, and its value is included in the market value of the land.

If counsel wishes us to make the assumption that at the date of this valuation, December 31, 1913, none of this property was owned by the company and that it was necessary for the company to go out and buy it, then on that reproduction theory it would be necessary to figure the cost of extinguishing the rights below the point of diversion at the dam. Mr. Lee did that in figuring the cost of water rights on his reproduction theory and it was found to be an insignificant figure, a few thousand dollars. The seepage from those lakes passing down that narrow ravine through some sand dunes would obviously have very little value to the owner of those lands.

3. Peninsular Water Rights.

Passing now to the Peninsula, we find the situation somewhat different. The company owns, with the exception of the Mills-Easton tract, all the watershed lands draining into the peninsular reservoirs. No one can divert any of the water of the San Andreas Creek, or the San Mateo Creek, or Pilarcitos Creek, so as to deprive the com-

plainant of its use. No one can come in above the points of diversion and divert the water, even if the company were not putting the water to beneficial use, but allowed it to spill over the dam crest. As to the Mills-Easton tract, it is our contention that the company does not own the rights and never acquired them, and we sustain that by the testimony of Mr. Rogers at pages 1161-2 of the record. Similarly, we contend that no one could come in below the Crystal Springs dam and divert water from San Mateo Creek if the company were permitting it to flow down there today. The company has purchased from all of the riparian owners to that creek the riparian rights to that land, but under the ruling of the Supreme Court of this State in *Duckworth vs. Watsonville*, 170 Cal., 425, 430, it has been held that where such a deed has been made it operates as an estoppel, not only to the owners of the land in question who gave the deed, but it would also operate as an estoppel to their successors in interest.

The value of the lands in the reservoir has already been accounted for, the land has been included in the real estate appraisal. The watershed lands were valued at their market value, the reservoir lands at an appreciated value derived by application of a percentage of appreciation to the original cost. When the company acquired these watershed and reservoir lands it acquired the right to take and divert all the water that flowed upon or through them as a part and parcel and an appurtenance of the real estate. There remained only to complete its title to these water rights the rights of the owners of the riparian lands below the diversion point. These rights the company proceeded to acquire by purchase. On San Mateo Creek the rights were acquired by purchase, and along Pilarcitos Creek by purchase and prescription. These rights as against the riparian land owner must then be valued in addition to the ownership of the land and structures necessary for the diversion. What is to be the measure of the right to be valued—the total amount of stream flow which is impounded and diverted? No, because the riparian owners had no right to stop the company from diverting the extraordinary flood waters of those streams.

4. Flood Waters.

All the witnesses agree that the character of the flow of the peninsular streams is quite characteristic of most of the coast streams practically dried up in summer and torrential during the rainy season. The riparian owner, under the law of California, is entitled to enjoin the diversion for riparian uses of all the normal flow of the stream, irrespective of and whether he can use it or not. But he is not entitled under the law of California to enjoin the diversion of extraordinary flood or freshet waters, except where he can make an affirmative showing of damages. These waters are the *ferae naturae* of the stream, in the same way that the wild beasts of the forest are considered *ferae naturae* of the forest, and they belong to whomsoever can catch and divert them.

THE MASTER—Has it been decided how you can measure the normal flow of the stream?

MR. SEARLS—Not in million gallons. I am going to read to you decisions which indicate the extent to which the cases have gone.

THE MASTER—What occurred to me was the obvious thought that the summer flow is no more normal than the winter flow. If the water escapes from its banks and does damage, you could consider it as vagrant water; although it might be flood water and within its banks, it might be considered as normal water.

MR. SEARLS—I did not wish to be understood as saying that the summer flow would be considered the normal flow of the stream. As I will show your Honor from a reading of the decisions, that is not the thought I had in mind.

I take it that that is one reason why the Spring Valley Water Company has purchased all the land along the stream above and below the point of diversion is to make it physically impossible for any person to come in above them and take these flood waters for their uses. It follows that this right to take and divert extraordinary flood waters is a mere incident of the ownership of the land, and is not entitled to a separate valuation in addition to the appraisal of that land.

Taking this one step at a time, I will attempt to establish this principle by reference to a few cases. The most interesting of these,

from the standpoint of the matter before us, is the case of *Fifield vs. Spring Valley Water Works*, 130 Cal., 552. In that case the Spring Valley Water Works, the predecessor of the plaintiff in this case, was the owner of the Fifield ranch, which is a part of the Crystal Springs watershed. Fifield brought suit to enjoin the Spring Valley Water Works from diverting the waters of the San Mateo Creek and carrying them through a tunnel into the San Andreas reservoir, basing his title on his right as a riparian owner on San Mateo Creek. The Spring Valley Company's defense was and the trial Court found that no actual damage was caused by that diversion, and that the defendant intended to take only the storm or flood waters or waters flowing into said creek during times of extraordinary high water or freshets in said stream. On appeal the Supreme Court held:

"The plaintiff is not injured and cannot be damaged by the diversion of storm or flood waters, hence it is not entitled to an injunction restraining the diversion of such storm or flood waters."

The Court then discusses the judgment and decree of the trial Court, which defines "storm or freshet waters to be such waters as flow down the stream in cases of extraordinary flow."

That ruling has been followed right through all of the recent California cases, and the only distinction that has been made is where the flow of these storm waters is a distinct benefit, and its deprivation would cause a clearly ascertainable injury to the riparian owners. Such was the case of *Miller & Lux vs. Madera Canal Company* (155 Cal., 59), in which the winter flow of the stream overflowed the banks of the plaintiff's land and was a great benefit to them, allowing "their cultivation and production of valuable crops and feed thereon without further irrigation."

The same principle of demonstrable injury was involved in the case of *Miller vs. Bay Cities Water Co.*, 157 Cal., 256, where the storm waters filled the water-bearing stratum in Coyote Creek in Santa Clara County, and their diversion would have lowered the water plane under the adjoining lands. There was, furthermore, in that case a clearly defined underground channel, which was filled by the water

percolating through the gravels in the creek. Neither of the situations in the last two cases are parallel with those on the peninsula. San Mateo Creek, after leaving Crystal Springs dam, passes down a deep canyon through residential properties, through the heart of San Mateo, across some marshy tide land, and into the bay. The only use to which the flow of the stream could be put was by pumping for domestic purposes, and the testimony of Mr. Lee, in this record (pages 9574-78) shows that the normal flow of the stream was sufficient for those purposes. The flood flow could only be utilized through storage, and it does not appear that there were any storage facilities or suitable dam sites below the ones selected by the company.

On Pilarcitos Creek the normal flow is ample for irrigation purposes, according to Mr. Lee's testimony (page 9668), due to the number of streams which have their confluence in that locality. No damage should result, therefore, from flood water diversion. If such is the situation, it seems clear that the rule of the Fifield case would apply.

That rule was subsequently reiterated in *San Joaquin, etc., vs. Fresno Flume Company* (158 Cal., 628), which was a suit by lower riparian owners to enjoin defendants from impounding and diverting the rain, storm and flood waters of the adjacent hills, causing thereby no diminution in the flow of the creek and no actual damage to the plaintiffs, who were lower riparian owners. The Supreme Court said:

"Even if at common or under the civil law it was a part of the usufructuary right of the riparian owner to have the water flow by for no purposes other than to afford him pleasure in its prospect, such is not the rule of decision in this State. The lower claimant must show damage to justify a court of equity in restraining an upper claimant from his beneficial use of the water. . . . The decisions of this State not only do not deny the right to the use of storm and flood waters, but encourage the impounding and diversion of this water wherever it may be done without substantial damage to the existing rights of others."

In *Gallatin vs. Corning Irrigation Co.* (163 Cal., 405) the same rule is presented. In that case the plaintiffs were riparian owners, and defendants diverted water of extraordinary floods without affect-

ing the normal flow of high waters for use beyond the watershed. No actual damage is shown by plaintiff, and no beneficial use of such waters was made by the plaintiff.

Justice Shaw, in writing the decision of the Supreme Court, referring to the Fresno case and Fifield case above cited, said:

"They establish a just rule, and flood waters which are of no substantial benefit to the riparian owner or to his land, and are not used by him, may be taken at will by any one who can lawfully gain access to the stream, and conducted to lands not riparian and even beyond the watershed, without the consent of the riparian owner and without compensation to him. They are not a part of the flow of the stream which constitutes 'parcel' of his land, within the meaning of the law of riparian rights."

In that case there was a suggestion of a possible reservoir site in which to store these flood waters, but the Court said that even if that had existed it would not affect the situation, because the diversion of extraordinary flood waters does not affect riparian rights. With respect to the line of demarcation between the ordinary and usual flow of flood waters and the extraordinary and unusual flow of flood waters, the Court said:

"During ordinary rains and for a considerable time between such rains, it (the stream) carries what may be called the usual and ordinary flood water, but at the time of any hard rain and for a short period thereafter, very large additions are made to the water in the stream, and these are carried on to the river without contributing anything worth while in the way of benefit to the lands of the plaintiff or any other person. It is a part of this water which the defendant company proposes to take, and which a judgment awards to it."

These cases are comparable with the one at bar with respect to a large part of the diversion from the peninsular watersheds. The question as to just how large is not so easy to establish, no stream flow records having been kept during the early years.

5. Measure of Normal Flow.

Mr. Lee quotes (page 9575) a statement from Mr. Schussler (made in the San Mateo Water Works case) that the normal flow

of San Mateo Creek during the summer months was one and one-quarter million gallons daily in the summer time, and that it would be somewhat larger than that in the winter; Mr. Lee gave it as his opinion that the average would be one and one-half million gallons.

Mr. Herrmann testifies (page 8989) that the amount of water which was diverted by the company as the result of the purchase of riparian rights is four and one-half million gallons, but he does not specify whether that included all the waters of the San Mateo Creek or not. He was referring there to the amount that the company had been enabled to divert by reason of the construction of the lower Crystal Springs dam.

If the sum of the diversions at San Andreas and Upper Crystal Springs was nine million gallons daily prior to the construction of the Lower Crystal Springs dam, as Mr. Herrmann testifies, and was immediately thereafter increased to $13\frac{1}{2}$ million gallons daily, it seems probable that sufficient storm flow was included in this $4\frac{1}{2}$ million gallons, which the riparian owners could not have stopped the company from diverting anyway, to compensate for what must have been a relatively small amount of normal flow in the San Andreas Creek and in the creek which fed the upper Crystal Springs dam prior to the construction of the San Mateo dam. This contention, while not supported by any definite evidence, is borne out by the contention of the company which was advanced in the Fifield case to which I referred. So, if we assume Mr. Herrmann's figures to be correct, the company acquired by virtue of purchase of the riparian rights on San Mateo Creek below the concrete dam the right to take $4\frac{1}{2}$ million gallons of water, and that represents the measure of all the rights they have which were not an incident or an appurtenance to ownership of the watershed and reservoir lands above the dam.

The same situation applies to Pilarcitos, except that rights as against certain owners of the canyon lands below the Stone dam not owned by the company appear to have been acquired by prescription, and the value of that prescriptive right should be allowed for somewhere in the appraisal of water rights.

The diversion was made at Pilarcitos at such an early period

that it seems impossible to hazard a guess as to how much of the flow was storm flow. But general information as to rainfall and run-off conditions on the peninsula watersheds warrant a statement that a very considerable portion of the annual flow of the Pilarcitos Creek comes within this category.

An examination of Exhibit 187, being the hydrograph of Alameda County, will give your Honor some general idea as to the characteristics of the flow of these Coast Range streams. I think that was a fairly typical stream; it has a heavier summer flow than would be expected in the larger streams that are found on the peninsula. You will note that a very large portion of the volume of water carried in Alameda Creek is made up of those storm peaks which follow immediately after the heavy rains, and which fall off very rapidly. That is the water that has been classified as extraordinary flood water by the courts of this State, and as to which no riparian owner can enjoin an upper appropriator from diverting.

To sum up the peninsular situation then, we are to value in the way of water rights in addition to ownership of the lands and structures, riparian rights to normal flow of San Mateo and Pilarcitos Creeks. The flow in San Mateo Creek, including the normal flow of San Andreas and the Upper Crystal Springs Creek would not much exceed $4\frac{1}{2}$ million gallons daily, the rest of the flow being extraordinary flood water.

If your Honor will consult Exhibit No. 135 and note the dates at which most of the parcels of land lying between the San Andreas Dam and the Lower Crystal Springs Dam, and between the Upper Crystal Springs Dam and the Lower Crystal Springs Dam were purchased, you will note that a large part of those lands had been acquired in or prior to the year 1876—in fact, there were quite a number of purchases made in 1874 and that would have been almost within the prescriptive period which would have elapsed after the construction of the San Andreas Dam in 1868; and that practically the only people who could have objected to San Andreas or Upper Crystal Springs diversion if any of the normal flow was included in it, would have been riparian owners below the Lower Crystal Springs

Dam, whose interests were subsequently purchased and included in our valuation, and I should add to that the owners of the Howard tract and one or two other tracts there which were not purchased until a subsequent date.

The following is a list of parcels and the dates to which I refer:

Parcel	Purchased
36	1874
38	1874
59	1879
40	1874
41	1874
39	1874
54	1876
47	1875
37	1874

MR. McCUTCHEN—How many of those touch the stream?

MR. SEARLS—All of them.

On Pilarcitos Creek the amount cannot be approximated in figures that may be properly designated as relatively small normal flow and relatively large flood flow.

THE MASTER—You don't mean, there, to make a distinction between normal flow and flood flow, because as I understand the cases that you have read the normal flow includes the flood flow; the distinction the cases make is between the extraordinary flood flow and the ordinary flood flow. They define the extraordinary flow as the flow that does not do good and the other one is the one that does.

MR. SEARLS—That is the idea, your Honor.

THE MASTER—In other words, the summer flow is something we ought not direct our minds to, because it is generally speaking of no significance at all for any useful purpose.

MR. SEARLS—Only in this way, that the summer flow of the creek would be an indication of the low water flow, the least that might be expected.

6. Alameda Creek Water Rights.

Turning now to Alameda County we find that water rights were acquired in still different manner. In 1875 for some reason which has been variously stated by the different witnesses as either an attempt to forestall acquisition of rights in this section by competing companies or by the City of San Francisco, the complainant's predecessor expended one million dollars in the acquisition of lands and rights known as the Calaveras purchase including the acquisition of a controlling interest in the stock of the Washington and Murray Township Ditch Company. The remainder of that stock was subsequently acquired by purchase. These two purchases enabled the Spring Valley Water Works to shut out all competitive sources. Some 13 years later, in 1888, the first diversion from Alameda County was completed and water brought across the head of the bay and carried into San Francisco. Again it was found necessary to buy out the rights of riparian owners between the Niles Dam and San Francisco Bay. Various tracts of land were purchased from time to time also in and adjacent to Sunol Gravels, chief among which were the de Saisett and Hadsell tracts.

About 1900 the second pipe line was built across the head of the bay and diversion further increased. It will thus be seen that the Alameda Creek diversion was much more of a typical appropriation than any of the San Mateo County diversions. The company acquired in the million dollar purchase, as it appears from Mr. Lee's testimony (9590) various lands of strategic value on Calaveras and Alameda Creek, including the Calaveras Dam site, the Vallejo Mills property and water rights, and a controlling interest in the Washington and Murray Township Water Company. Taking the land at values per acre, approximating the prices paid by the company for some adjacent lands, we find that the total value of the property which the company seems to have acquired to date of the purchase is about \$200,000 (9590) leaving \$800,000, for which no definite consideration appears to have been received, except the water rights of the Vallejo Mills. This, however, did place the company in such a strategic

position that it could without the necessity of making any additional purchase of water rights except the riparian rights below Sunol protect from adverse appropriation and develop as it was needed practically the entire amount of its present yield from San Antonio and Calaveras and the Upper Alameda Creeks, increasing the amount to be taken as the necessity might require.

It appears also from the testimony that the limit of the amount which the company may take by virtue of its purchases, and the time has practically been reached, and that it will be necessary for them to make some additional settlement with the Niles Cone riparian owners before further diversions can be made. However the company has not claimed the valuation of their undeveloped water rights and that question does not enter into discussion here.

I am, therefore, of the opinion that the company's water rights in Alameda County should be taken and considered as an appropriation good as against all riparian owners below Sunol, and subject only to the qualification that it might be possible even to-day for adverse appropriators to go in above the company on either the Arroyo Honda or the Upper Alameda Creeks and store and divert extraordinary flood waters. In other words, even in Alameda County there may be some question as to the complete title of the company to its water appropriations, although by result of the strategic position in which it is placed by virtue of the Calaveras purchase—the original Calaveras purchase—there has been, and probably always will be, little likelihood of any person asserting the right to capture storm waters at points upstream from their present dam sites.

7. Pleasanton Water Rights.

The next appropriation made by the company was at Pleasanton. Here a still different situation arose. Waters which for years had been flowing down the Arroyo Valle, Positas, Tassajara, Mocho, Alamo and Laguna Creeks into the Pleasanton Gravelly and there had been dammed up by the impervious dyke at the eastern mouth of the Niles Canyon, in the winter time backing

up and flooding over the eastern edge of the overlying clay cap near Livermore, were diverted by artesian wells driven through a clay cap at Pleasanton and carried down Laguna Creek to Sunol, and thence into the Alameda Pipe Line. Lands riparian to the creek between Pleasanton and Sunol were purchased and have been included in the valuation. Various tracts of land in which the wells driven were situated were also purchased, and have been included in the valuation. In about 1910 the diversion at this point reached such an extent that serious complaint was made by the owners of the lands immediately to the east and north of Pleasanton that their lands were being damaged by the undue lowering of the water plane, resulting from the pumping operations. The company elected to settle this dispute,—which culminated in the filing of an injunction suit—by buying out all the lands in question, which constitute what are called in this case “the Pleasanton Ranch lands.”

I have already spoken of the great agricultural value which these lands possess and the desirable investment features from the real estate point of view of the purchase. So far as water rights are concerned, it is true that the purchase of these lands gave the company the right to pump as against the surface owners, but that is all. It did not give the company the complete water rights, as they have never settled with owners in Livermore Valley to the east of the Pleasanton Ranch Lands, nor the owners of lands riparian to the lands on the various creeks which are tributary to the Pleasanton Gravels. By that I mean that the owners of lands riparian to each of these various creeks might divert a portion of the stream flow for riparian use and thereby diminish the amount which was fed into the Pleasanton Gravels. They have acquired part of a reservoir site in the Arroyo Valle, but no land whatever on any of the other tributaries. It must therefore be apparent that any riparian owner could go in on any of these creeks and divert considerable portion of the water for uses on his land. The company obviously acquired no rights by prescription against the upper riparian owners. I believe however if the company

be allowed the value of the Pleasanton well tracts and all the lands riparian to Laguna Creek between Pleasanton and Sunol, and likewise the riparian rights between Sunol and the bay, that the only additional value that should be given would be the value of the right to take water from beneath the Pleasanton Ranch lands, for that is the only additional right that the company has.

8. Advantages of Proposed Method of Valuation.

The foregoing method of ascertaining the rights which are to be valued has, to my mind, a number of advantages. In the first place, it includes all the rights which the company has, in addition to the ownership of the lands and structures, and no more. In the second place, it follows the historical method of acquisition and involves the least speculation. In the third place, it admits of the direct application and test of the original cost as a sufficient measure of present value, and finally it permits a fair valuation of such rights as are more or less incomplete, measured by the extent to which the company owns them. To make this last contention clear, I think I might contend with some justification, that the rights which the company has at Pleasanton are not valid water rights at all, but would be subject to interruption and seizure by any riparian owner east of the Pleasanton Ranch lands, and that therefore no valuation should be allowed. On the other hand, looking at it from the company's point of view, by virtue of their purchase of land they have acquired certain rights as against the Pleasanton lands and to the lands riparian to Laguna and Alameda Creeks, and have diverted for a number of years certain amounts of water for use in San Francisco. It is our assumption that they will be able to continue the diversion of the amount that they have taken, although it involves some speculation, to say the least. For this reason I believe that it is fairer to the company to value these rights as Mr. Lee has valued them, rather than to claim an entire exclusion of value because they are not perfected water appropriations. If the company eventually acquires

the right as against the remaining land owners in the Livermore Valley and in the upper reaches of the tributaries to Sunol Gravels, this additional investment could be credited to water rights and enhance their value, but it should not be credited until those purchases are completed.

9. Yield of Water Rights.

Before taking up a discussion of the valuation of the water rights, I wish to briefly refer to the testimony of the engineers as to the total yield of the rights. That expression does not quite correctly define it because from a legal point of view the total yield of the water rights is really the total yield of the lands and the structures which we have been discussing. For example, if the company did not have the Crystal Springs Dam and had only the water rights of San Mateo Creek it is very obvious that the yield of those rights would be nothing like what it is with storage and to that extent the yield is affected by the construction of the dam.

Complainant's witnesses have assumed an average net yield of 42.4 million gallons daily, taking 22.4 millions from the Peninsula sources and Merced, and 17.8 million gallons from Alameda sources, the latter being measured by the maximum sustained diversion for one month at Sunol and the former by average diversion at the Lower Crystal Springs Dam, San Andreas Dam and Lake Merced.

THE MASTER—Where do you get that figure of 22.4?

MR. SEARLS—I obtained that by adding 3.4 million gallons daily at Lake Merced to the 19 million gallons from peninsular sources.

THE MASTER—Yes; Mr. Herrmann gave 17.8 at Sunol.

MR. SEARLS—That was his average yield. I think he measured 20,000,000 gallons, the capacity of the pipe line as the measure of the rights for the year subsequent to the installation of the Ravenswood Booster.

MR. McCUTCHEN—It was 21,000,000 gallons.

MR. SEARLS—After subtracting the obligation to deliver

certain quantities of water which were reserved by riparian owners in their original sales to the company, Messrs. Herrmann and Anderson, for the complainant, find—apparently on the basis of instruction from counsel—that the measure of the Alameda rights would be the maximum sustained diversion for one month. I do not know on what theory counsel has based this advice. Every time they have sustained a maximum diversion for one month, it has met with the most vigorous kind of protest from the land owners to the east of Pleasanton, particularly in 1913, and it is to be presumed that if such diversion were continued, that serious litigation would result. Mr. Lee's method of using the safe annual yield appears much more logical. In using this method he finds (9694) that the total yield of the system is something like 35.8 million gallons daily, instead of 43 million gallons, the difference arising principally as to the sustained diversion at Pleasanton. He substantiates his figures by a hydrographic chart showing the stream flow of the Alameda system for all the years for which any records exist. This chart is in evidence as Exhibit No. 187.

THE MASTER—Mr. Searls, my mind is not clear: when you speak of 38,500,000 and 43,500,000 as the yield of the system that describes a fact as to how much water is brought in; if you are talking about yield of water rights or something of that sort, then of course that is another thing.

MR. SEARLS—No, your Honor, I don't think that 35.8 million gallons describes the amount of water which has been brought into San Francisco in the last few years, it is the average for the period in question.

THE MASTER—I am not referring to the last few years.

MR. SEARLS—I don't quite understand your Honor.

THE MASTER—This struck me, that there might be a dispute between you as to the amount that the company was entitled to divert and to claim the water rights but I don't see how there ought to be very much question as to how much water during any prior question was brought in.

MR. SEARLS—I don't think there is.

THE MASTER—Is that the difference between the 35,000,000 and the 43,000,000 that you speak of?

MR. SEARLS—No. As I understand it, the 43,000,000 represents the maximum sustained diversion for a given period and that counsel has claimed as the measure of the water rights; the 35.8 million is the average diversion for the period of years, and it has been the city's contention that if water rights are to be measured at all by that way that that ought to be the measure. Your Honor will note later that the only place in which Mr. Lee uses that figure at all is in figuring water right values on a comparative sale basis in order to parallel his study with Mr. Anderson and Mr. Hazen.

MR. McCUTCHEN—The largest quantity which Mr. Lee allows for any year for the purpose of his treatment of the problem is 35.8 million; that is to say, he says that was our maximum right.

MR. SEARLS—He based that in part on the fact that you had not diverted a greater amount than that for a prescriptive period.

MR. McCUTCHEN—We did however during the last four years in controversy actually divert and deliver to the consumers very much more than that.

MR. SEARLS—There is no question about that.

Exhibit 187 is of considerable interest in showing the tremendous peak loads which the Alameda Creek tributaries carry during the winter season as compared with their summer flow, and I am satisfied that an examination of it will convince your Honor that all statements as to the very large proportion of extraordinary freshet water which exist in all these coast streams will be amply substantiated. The difference is that in Alameda County the wild waters, for lack of storage, rush away to the bay and are lost; while in San Mateo County they are caught and impounded in the Peninsula reservoirs.

So far as the quantity which the company may divert at Pleasanton is concerned, upon their own showing they have no prescriptive right to divert the amount that they have sustained for one month under any conceivable circumstance, and in view of

the fact that this is all underground water, and for the most part, must have been taken without actual or constructive knowledge of the overlying land owners east of the Pleasanton tracts, I am at a loss to understand how counsel can claim that this Pleasanton diversion is a prescriptive right under any theory. There is certainly no evidence here sufficient to enable your Honor to determine that they have established such a prescriptive right.

10. Valuation of Water Rights By Complainant's Witnesses.

Water rights were valued for the company by Messrs. Anderson and Herrmann, and for the city by Mr. Lee. The methods used were radically different. I shall speak first of those employed by the complainant's witnesses.

Starting out with preliminary assumptions to which I have heretofore alluded with regard to what constitutes the water rights to be valued, and the measure of the quantity, based on maximum diversions for a sustained period of one month, both of the complainant's witnesses are of the opinion that the water rights should be valued at \$100,000 per million gallons daily of delivery.

So far as this valuation rests upon the mere opinion of these witnesses it will, of course, be governed by their qualifications to speak.

a. Anderson's Qualifications.

Mr. Anderson, a hydraulic engineer of considerable reputation, has, up to the last year or so, conducted his professional work almost entirely in Colorado. His knowledge of water rights and their value in California is gained solely from the studies he made in connection with this case, and a valuation which he made for the Pacific Gas and Electric Company during the same time. He has never bought or sold any water rights in California, and his knowledge of prices at which they were bought and sold, which, of course, is purely hearsay, it has been admitted I think freely, was a part of the general information upon which his opinion is based.

But his opinion is not entitled to any special consideration on

account of practical experience in the matter of the acquisition of water rights in this State because he never had any.

Mr. Anderson recently testified in the Denver rate case that water rights in the vicinity of Denver were of a value of approximately \$66,000 per million gallons daily (p. 8950). And, in that case, it appears that his valuation was based upon the actual yield of the sources which he was valuing, from the year 1900 to the present time (p. 8947). On page 8951 of the record, he says:

"The basis of the valuation was upon the water rights used for agricultural purposes in the immediate vicinity of Denver. There the conditions are different from what it seems to me they are here in that while the water rights and the water supply is used to its limit, the agricultural products obtained from the use of that water are limited to the staple agricultural production of, say as high as alfalfa, and some sugar beets—not much though, immediately around Denver; the average price of the best lands in that immediate vicinity ranges from about \$250 to \$300 per acre, with water rights, and all improvements. That corresponds with what I think I have stated here as \$400 per acre, with the water only attached; in other words, the service which these water rights can produce in Colorado, and in Denver, particularly, are very much less than what can be obtained for similar service of similar water rights in this vicinity."

I think I should add to this statement, your Honor, the statement that water rights in Colorado rest on a somewhat different fundamental basis than they do in California. If your Honor has studied the systems of water law in the West, you will understand there are two general doctrines which are applied, the Colorado doctrine, which is a doctrine of exclusive appropriation—there is no such thing as a riparian right in Colorado or in the States which have followed the Colorado doctrine; and the California doctrine, which is a combination of both the common law doctrine of riparian rights and the doctrine of appropriation. The Supreme Court in this State tried to correlate the two and it caused an infinite amount of trouble to the water companies ever since. The State has been trying, in the enactment of water legis-

lation, to get some basis for adjusting the differences between riparian owners and appropriators. That difficulty, though, never did exist in Colorado because the riparian doctrine was never in effect there. So that when Mr. Anderson adopts a basis of the yield in Colorado he is using an entirely correct basis under the law of that State; in California, where riparian rights are in force, we have also to consider the rights of riparian owners and their effect upon the system.

As I shall show a little later, the testimony indicates that alfalfa, sugar beets, and deciduous fruits are the principal products of the agricultural land which would be subject to irrigation in the vicinity of the Spring Valley sources.

The difference in value of land, of \$100 per acre of which Mr. Anderson speaks, may very probably be due to the nearness of the land adjacent to San Francisco Bay to a larger market and deep-water transportation and elements of residential value, and not to superior productivity of the soil. That would seem the logical assumption from the fact that the products are practically the same as in the Denver case, with the exception that we have in the Santa Clara Valley also deciduous fruits.

So far as mere opinion goes, then, Mr. Anderson appears to be somewhat inconsistent in his testimony. Unless he can justify his increase of \$35,000 per million gallons in price by either comparative sales or special conditions his latest valuation should be viewed with considerable doubt.

b. Herrmann's Qualifications.

Mr. Herrmann, who has not either bought or sold any water rights, seems to have acquired most of his experience in the line of their valuation by appearing as an expert witness for various utility companies in this State. He has settled upon \$100,000 as being a very convenient figure, and gives it also as his opinion. I am satisfied that a reading of the record of his testimony will convince your Honor that Mr. Herrmann's views are anything but impartial. I don't accuse him of coloring them to suit the occasion. But I am satisfied that his long connection with the Spring Valley

Water Company, and kindred public service corporations in the first instance, and the exceedingly flimsy evidence which he uses in an attempt to bolster up his figure, leaves considerable to be explained before much importance can be attached to it. The greater part of his Southern California data appears to have been gathered for him by Mr. Anderson, or in conjunction with Mr. Anderson, and both of them seem to have taken data from Mr. Lippincott's office records quite freely.

I cannot find that Mr. Herrmann adds anything to Mr. Anderson's testimony, except his personal acquiescence in the views of the former. It is true, he produces, from the archives of his notebook, reference to certain sales of water in California, varying from a few miner's inches up to almost one million gallons where, by a process of mathematical expansion, he figures the value of 40,000,000 gallons would be \$4,000,000. But he ignores the only possible comparable sales to which he refers,—namely, the San Jose purchase, and the Tulloch Ditch purchase,—where a considerable amount of water was involved,—as being either too old or not comparable.

c. Efforts of Public Utility Engineers.

There is a certain class of public utility engineers in this State who have, during the last eight or ten years, and particularly since the Railroad Commission took charge of public utility valuation, hypnotized themselves into an attitude of great veneration for the value of various intangibles, among these being water rights, franchises, and going concern. And I think, like Dickens' character Mr. Stryver, they have told the story so many times that they have actually come to believe it all themselves. They have not, however, succeeded in convincing the Railroad Commission on most of these topics; and I sincerely hope that they are not going to succeed in convincing the courts unless they can show some definite, tangible, reason why the values which they fix should be allowed. There isn't any question in anybody's mind but that water is a valuable product in all the Western States. It is a valuable product in California. The exclusive right to take,

divert, and use water, is a valuable right. So far, so good. But when it comes to measuring the extent of this value, must we accede to the propositions of these gentlemen that it is worth many times what anybody has ever paid for it in comparable sales? Must we accede to the proposition that this value, in a residential section, would advance with the same degree of rapidity that the value of farm lands advances when they are converted into city lots? Must we accede to the proposition that whenever the value of a piece of land increases with the application of water that it is solely and only the water right to which the increment should be applied and not the inherent qualities of the soil which the water right develops? Must we accede to their proposition that because, on one basis of figuring, a water right is worth something in a citrus belt, that it must be worth the same figure in a section which will not produce citrus fruits? The sum total of their reasoning seems to be reduced to this: that if by any process or method of calculation they can work a \$100,000 a million gallons daily out of water rights somewhere within a radius of a thousand miles,—irrespective of the purpose for which it is utilized, irrespective of the quantity which is involved, irrespective of the profits from the land which it will irrigate,—that then their figures are amply substantiated.

There are only two places in their conclusion where it ties up with their premise. Both Mr. Herrmann and Mr. Anderson say that to get a comparable sale you must go to a locality where the supply is limited and there is a demand for the supply. They stop there. And although all of their so-called comparable sales have a dozen additional circumstances attending them which make them absolutely non-comparable with the proposition before us, these gentlemen go glibly on with the statement that, because they tie up to these two prerequisites, all the requirements of logic are satisfied. And, I suppose, if they can only find some court to agree with them on the general proposition that they advance, that water rights are worth \$100,000 per million gallons daily, they will say gleefully that that establishes market value, and, like Mr. Grunsky, rely upon the court's opinion which was based upon their

own opinion unsupported by any facts, as creating market value at a figure which never before existed.

I believe that I have sufficiently expressed my opinion on the general line of reasoning which Mr. Anderson and Mr. Herrmann have used. I shall address myself more closely to the logic, or, rather, the lack of logic, in their supporting evidence.

d. Anderson's Lines of Inquiry.

Mr. Anderson uses five lines of inquiry. The first of these he characterizes as the value of water rights used for irrigation purposes in other parts of the State, chiefly in Southern California in the Santa Clara Valley. He says (8757):

"The nearest adjacent district in which water is used for irrigation purposes, affording the closest comparable conditions, lies in Southern California. In that territory the water supply is limited in quantity; there is active demand for its full volume and for irrigation purposes it has been carried to its highest and most valuable development. The climatic conditions are more nearly similar than elsewhere throughout the State, the populations dependent on water supply are relatively comparable, and the operations of the systems distributing the water supply are in the hands of mutual companies, from whose financial reports and records of sales reliable information of values can be obtained, and in some degree, knowledge of the efficiency of the supply itself in relation to the basis of water right value."

What Mr. Anderson omits to say is that the irrigation purposes for which the Southern California water supplies have been used in the cases to which he refers are absolutely not comparable and impossible for any of the San Francisco Bay region; that the profits derived from the land under the application of water in the Southern California citrus belt have absolutely no relation to the profits derived from land under the application of water in the San Francisco Bay region; that the rainfalls of the two sections are radically different; and that the highest use does not necessarily mean the highest value.

I challenge counsel right here to show anywhere that when

the government of the State of California conferred upon complainants the right of eminent domain to take a water right in use for any other than domestic purposes and condemn it for their own use, that that government intended that they should thereupon be entitled to value that water right at a very much higher figure than they ever paid for it merely because the irrigationist could never take it away from them.

I think your Honor outlined, on the trial of this case, the only connection which use and value can have, and that is that if the company has a right to take water adapted for irrigation use and utilize it for domestic supply that the value would be at least the value for irrigation purposes. In that reasoning I hardly concur with your Honor. But I stop there and say that, unless the complainant can show that the water in use for domestic purposes has a higher market value than for irrigation purposes in the vicinity in which it is acquired, they have absolutely no right to increase its price beyond the figure which they would be required to pay.

And it may be pertinent here to inquire, Under what circumstances could the water right have, logically, a higher value in domestic use than for irrigation use? The only answer that could be given is that some other corporation or municipality would be willing to pay a higher value for it for domestic purposes. Why would they be willing to pay a higher value for it? Only if the profits from domestic service would be greater than in irrigation service. And there is the kernel of the whole matter. If the water companies can be permitted, by the rate-fixing bodies, to earn a high profit from their water sales, then they furnish a basis which would justify a prudent seller in paying a value for the water right based on its capitalized earnings. But if we assume, as I think we are entitled to assume, that the rate-fixing bodies which have existed in this State, and in this community, ever since 1879, have not and will not permit these water companies to earn grossly excessive profits from the sale of water to the public, then there is no justification for saying that that water right would be capi-

talized by a prospective purchaser at any higher rate than it would earn in irrigation use.

If this court should desire to start out with a preliminary assumption that a reasonable profit for a water company would be at least twelve times the reasonable profit for an agriculturist, then there might be some justification for the \$100,000 valuation of water rights as against the \$8000 figure which Mr. Lee's uncontradicted testimony shows as the value in this community for irrigation use. But there isn't any other premise upon which such an assumption would be justified.

e. Citrus Belt Water Values Not Applicable.

But I return to my discussion of Mr. Anderson's method. He doesn't claim that citrus culture could take place in the San Francisco Bay region. Nor is Mr. Lee contradicted, in the assertion that he makes (9698) that alfalfa and deciduous fruits are the most important crops irrigated in the vicinity of Alameda Creek and the soil and climatic conditions in the vicinity are not, in his opinion, adapted to raising citrus crops on a commercial scale.

f. Moreover They Are Erroneously Derived.

Again, Mr. Anderson makes a curious hypothesis in the application of his Southern California data. He assumes that he can take from the financial statements of the various mutual water companies the gross assets, subtract the value of their treasury stock and against the remainder consider the liabilities, including bond issues and bills payable, obtaining a net remainder in the form of a surplus. This he divides by the number of shares which a company has and obtains the share value of all the assets in the company other than water rights. He then subtracts this other value, thus obtained, from the market value of the shares, and calls the difference the water-right value of the share. By determining the quantity of water which each share of stock represents he then obtains a value per miner's inch and per million gallons daily. The interesting thing that Mr. Anderson ignores is simply this: that the market price at which these shares were sold depends entirely upon the capitalized increment in profit which the owner-

ship of that share, and the water right it represents, gives to the owner of the land to which it attaches. It makes very little difference to the land owner assuming the share worth \$325, as Mr. Anderson suggests (8901) for one of these water companies, whether that \$325 represents \$300 worth of structures and other assets and \$25 worth of water rights, or whether it represents \$25 worth of assets and \$300 worth of water rights. It is the gross figure with which he is concerned, and that is determined by what he can afford to pay and still obtain a fair profit from his land.

To say, then, that the net figure which is derived after deducting all the other assets from the gross value of the share means anything, even in the citrus belt, is absolutely fallacious. What Mr. Anderson should have done was to say that the gross value of these water rights in Southern California is \$325 a share, or approximately \$2000 per miner's inch, and use that gross figure as his basis of comparison elsewhere, if that is the figure which is really the market value of the water right. Then, if he deducts from that the price per share of the structures and other assets necessary to develop the water right, he will have the net value of the water right for the community in which he applies it, assuming, of course, that it can be applied.

As Mr. Lee points out, if Mr. Anderson had followed this method and had brought his \$2000 a miner's inch and applied it to the Spring Valley works, which would be equivalent to about \$150,000 per million gallons daily, let us say simply for the purpose of argument, and subtracted from that the cost of the structures necessary to develop that right for domestic supply, he would have a minus quantity. And that again illustrates the inapplicability of his mutual water company data. The whole effect of the purchase and sale of the stock of the company, as reflecting the opinion of the buyers and sellers, of the value of water rights, is entirely lost when applied, as it has been applied, by Messrs. Anderson and Herrmann.

The two objections I have just outlined seem to me insurmountable objections to the Southern California data, although I shall ignore those objections when I come to consider its application, if you are going to use it at all.

g. Santa Clara Valley Investigation.

His next alleged supporting data is an attempt to derive the value of water rights in the Santa Clara Valley by capitalizing the cost of pumping water on the assumption that if the owner of the land is willing to pay so much a year to get water on it that the capitalized cost of that water represents the net value of the water right.

I am rather surprised at a man of Mr. Anderson's professional standing advancing a line of reasoning which is so palpably absurd.

Let me, by a simple illustration, show your Honor how impossible it would be to get a net value in that way, especially if we use the percentage which Mr. Anderson does for capitalization. We will assume that a man has a piece of land which is yielding a net revenue of a thousand dollars a year without irrigation. He figures that if he could add to his net profit an additional net return of \$500 per year, after deducting cultural costs, that that extra \$500 represents something more than the additional amount per year he would have to pay out for the operating expenses of a pumping plant, or ditch rentals, depreciation on the plant, and interest on the investment. I say "something more" because he would probably want a profit on his investment in irrigation works.

But let us figure, as Mr. Anderson did, that he would be willing to invest if he could get merely his operating expenses, depreciation charges and interest. What is his next process of reasoning? He goes into the market and finds what it will cost him to install irrigation equipment, or to rent water for irrigation purposes; finds that it will cost him just \$500 a year for operating expenses of his pump, depreciation on the machinery, and interest on the investment necessary to buy and install it. And he goes ahead and erects. Are the net profits from his land any greater? Certainly not. It is true he gets \$500 increase in net revenue after subtracting cultural costs, but all of that \$500 goes to pay for the cost of pumping, depreciation and interest on the investment. Is there, then, any net increment of value to his land, resulting from the application of water? Most certainly not.

What Mr. Anderson did was to attack the problem from the other end, figure what the operating expenses, depreciation, and investment would be on the irrigation plant, and assume that he could capitalize that at a net rate of interest, and obtain a water-right value. His capitalization doesn't mean anything. What he should have done was to find what would be the net increase in profit from the land after this water was applied,—not the gross increase; and then capitalize that net increase. But he didn't do that. Your Honor will find his line of reasoning set forth at page 8763 of the record, and you will see that it deals solely with the cost of irrigation and not with the profit from it.

He next attempts to show the increment in land value in 1913, due to the attachment of water rights for irrigation purposes. His testimony in this respect is based wholly on some hearsay information gathered in various trips through the Santa Clara Valley as to how much extra land with water developed on it, sold, per acre, as compared with land upon which no water was developed. He has not qualified as being familiar with Santa Clara realty values, except by these general inquiries, and his testimony is, moreover, flatly contradicted by that of Mr. Atkinson, who testified for the defendants (9496-9521, of the record).

h. Contradicted By Atkinson.

Mr. Atkinson is a real estate man who has operated many years in the Santa Clara Valley and, as his testimony shows, is thoroughly qualified to testify as to the value of lands in that vicinity, with and without water. He reaches the conclusion (9496) that for tracts of from 10 to 20 acres, that the margin of value upon land otherwise comparable, with or without water, is about \$100 per acre; that the \$100 includes investment in structures necessary to place the water upon the land—and by “investment” I mean the depreciation and the interest; and (9498) that for a tract of from 10 to 20 acres the investment per acre for structures would run from \$30 to \$50 per acre,—the smaller the tract the larger the cost per acre. Assuming that it was \$50 per acre, the net increment in value, due to the application of water, would be \$100 less \$50, or \$50 per acre. This figure Mr. Lee transposes into

terms of value per million gallons daily on the assumption of 1.13 acre feet of pumped water per acre and seven months irrigation season,—which was also Mr. Anderson's assumption—and reaches a figure of \$29,000 per million gallons per day for water right value (9791), just the figure which Mr. Anderson would have reached by his application of proper basic data.

It should be noted that Mr. Atkinson's testimony as to the cost per acre for pumping installation is practically corroborated by Mr. Anderson's figures, page 8763, where he estimates that the cost of a plant to irrigate 50 acres would be \$2000, or \$40 per acre. For a 10- to 20-acre tract such as Mr. Atkinson was describing, the cost would be proportionately greater, and the net value of the water right proportionately less.

i. Original Cost.

The third consideration to which Mr. Anderson addresses himself (8755) is the original cost of acquiring the Spring Valley water rights, and it may be said here that there is no disagreement between the witness as to the original cost of the water rights if we except the situation at Pleasanton as to the percolating waters. In fact, Mr. Lee is a little bit higher than either of the complainant's witnesses. I shall discuss this feature in connection with Mr. Lee's testimony.

j. Assessed Values.

Fourth, Mr. Anderson speaks of the assessed values of the water rights. I think it almost unnecessary to argue that these assessments show practically nothing. The assessors of San Francisco and San Mateo Counties do not assess these rights at all, and the assessor of Alameda County has made a more or less arbitrary assessment of \$3,000,000 in gross, which the company has contested in two cases, and which Mr. Olney admits (9095-6) is of very little significance as a valuation. Both Mr. Herrmann and Mr. Anderson have reduced this \$3,000,000 assessment to a valuation per lineal foot on their riparian rights and, as shown by the original assessment rule, the assessor never figured it in any such way (9044-9045).

k. Reproduction Cost.

Finally, Mr. Anderson discusses reproduction cost in general terms and concludes that it involves too high a degree of speculation to employ it. He says, in a general way, that (8793) it would be extremely doubtful whether the rights could be re-acquired for many times their original cost. But his conclusion is not based on either any personal knowledge of the cost of acquiring rights in this vicinity or, in fact, upon anything except the fact that land has increased in value.

I have devoted this much attention to the methods of valuation employed by Mr. Anderson,—and, with few exceptions, the criticism applies also to Mr. Herrmann's valuation,—because I felt that I could clearly demonstrate to your Honor that none of his lines of reasoning get him anywhere, as a support to his valuation. It must stand or fall upon Mr. Anderson's opinion. He says that the rights are worth \$100,000 per million gallons daily, but he has shown nothing to make that opinion of any value to your Honor. If he had said a million dollars per million gallons daily, or ten thousand dollars per million gallons daily, his opinion would be worth just as much so far as any logical support goes.

1. Herrmann's Testimony.

Mr. Herrmann reaches the same conclusion as Mr. Anderson by the use of practically the same line of reasoning (8807). He says that reproduction cost is too speculative, makes some general observations about the assessed value of Alameda rights; reaches conclusions as to the original cost at about the same figure employed by Messrs. Anderson and Lee, and makes some observations about the enhanced value of land in the San Joaquin Valley resulting from the application of water. His statements under the last heading (8827-8829) are subject, first, to the weakness that he has not qualified as an expert on agricultural valuation in the San Joaquin Valley, and his testimony should consequently be entitled to little weight. On cross-examination (9050-9053) he specifies the particular instances of which he has knowledge as being the Wood

Colony, where he said land was purchased for less than \$25 and sold in similar pieces with water at \$150 per acre.

I think he also made some reference to some place near Oakdale but which he did not describe.

m. Contradicted By Wood.

In this respect he is flatly contradicted by the testimony of Mr. Wood, witness for the defendants, and son of the former owner of the Wood Colony Tract (9744-9765), who qualifies as being thoroughly familiar with the history of that tract, and shows that the application of water had very little to do with its enhancement in value. It seems that back in the nineties before water was finally applied, but after the irrigation ditches had been built, the land was selling in subdivisions at \$40, and subsequently advanced to \$45 and \$50. About ten years afterwards when the Modesto District had been very fully developed and all the property improved and set out to alfalfa, there were some sales at from \$125 to \$200 per acre. He says on cross-examination (9755):

"It is my opinion that \$100 an acre would be the market value to-day of those lands assured of water and not planted to alfalfa, but I think the land was worth more than \$25 an acre without water on it for the purpose of raising grain. In 1884 the Wood Tract sold for \$48.50 an acre, and it fell to \$25 an acre on account of lack of crops, bad years, and the price of wheat."

And again on page 9757:

"I am sure there was not any land sold for \$100 an acre within three years after water came on there that was not planted to alfalfa and demonstrated and proved."

It thus appears that Mr. Herrmann was either misinformed as to the reasons for the increase in value in the San Joaquin Valley, or jumped at conclusions.

There isn't any question, I take it, that the price of farm lands in the San Joaquin Valley irrigation district have largely advanced since water was applied, but to say that that was all

due to the application of water and that the increment in value represents the value of water rights is clearly fallacious. The inherent quality of the soil, climate, market facilities, the railroads, the growth of towns, all had their share in increasing the value of the land, and while water played its part and probably the increase would not have taken place if there had not been water, it would not have taken place if water alone had been applied and the other developments had not taken place. It is, therefore, not logical to assume that all of this increment in value represents the value of water rights. It represents also much expenditure of capital and human effort.

MR. McCUTCHEN—What would you say about Imperial Valley, Mr. Searls? Is the increase in value there due solely to water?

MR. SEARLS—I suppose water was the element which originally started the increase, but I would not say that all the increase in toto was due to water.

MR. McCUTCHEN—Lands are selling there now for agricultural purposes in some cases, so I am informed, for as high as \$300 an acre, which I suppose it will be admitted would not be worth \$5.00 an acre to-day without water?

MR. SEARLS—I imagine that you could take the same water and apply it to sections in the Nevada desert and it would not be worth a cent more after you applied it than it was before because there is so much alkali in the soil there that you could not do anything with it.

MR. McCUTCHEN—Does it result from that that the water in the Imperial Valley district has not made the land worth the difference between \$5.00 and \$300?

MR. SEARLS—The water did its share, but the quality of the soil had something to do with it, and climate had something to do with it, and railroad facilities had something to do with it, and so on. If the Imperial Valley were an oasis in the Sahara Desert and there were no transportation facilities there to move the product of the soil I imagine that that consideration would have its effect also.

MR. SEARLS—Before taking up the discussion further, your Honor, I wish to refer you to Judge Morrow's decision in the case of *Tonopah v. Public Service Commission of Nevada*, rendered August 13, 1913; I do not think it is reported in the Federal Reporter.

THE MASTER—I have a copy of it.

MR. SEARLS—He gives expression to the thought that the land and the water are inseparable in appreciating values.

THE MASTER—I might say to you, Mr. Searls, that it was pointed out to me in the Contra Costa case that the fundamental law in California and in Nevada is different as regards percolating waters.

MR. SEARLS—Yes, sir. The only purpose for which I cite that case is showing the judicial approval of the theory that the land and the water are more or less inseparable in determining the value of a tract having underlying, percolating water.

THE MASTER—The point would be, of course, that if you had a piece of land with percolating water under it, under the law of Nevada you would have no possibility of getting a right independent of the land value; now, conceivably in California, under the rule of the recent cases, if you did establish a clean and clear right to divert the percolating water to the injury of your neighbors, it would be something over and above what would be contained in the land value; just as you say, if you have a right of appropriation that cannot be deemed to be included in the land value, it must be valued separately; in other words, you might have a 50-foot strip on a piece of land and also have an appropriation, either statutory or prescriptive, which is located at that point of diversion, you would not include your appropriation value in the value of that strip of land.

MR. SEARLS—No, sir, although the value of that strip of land would, to my mind, include the valuation of the proportionate part of the riparian right on that stream.

THE MASTER—Oh, yes.

MR. SEARLS—Now, to resume the point I was discussing at the time we took our recess:

n. Herrmann's Alleged Comparative Sales.

This leaves as the only new basis for Mr. Herrmann's valuation a number of sales to which he has referred, and I shall take up each of these. First there was the Livermore sale. There is some conflict in the testimony as to the quantity of water which that right represented. Mr. Bissell, the former owner of the Livermore Water Company, testifies (pp. 9991-9998) in regard to the sale, that the total amount paid for the entire property was \$242,000. The company had always carried its water rights as an asset at \$100,000 valuation. This figure comprises one water right near the Positas Creek and one on the Mocho. The Positas water right consisted of the right to pump from the Livermore Ranch, which the company did not own. They owned just enough land to install their pumps upon some three or four acres. Parenthetically, it is interesting to note how the management of the water company handled its subterranean rights as compared with the Spring Valley in the Pleasanton District. Mr. Bissell did not find it necessary to buy out the entire 377 acres to enable him to pump. He simply bought the water rights. These rights were included in the sale to the Pacific Gas & Electric Company at \$100,000, although the Railroad Commission in confirming the sale, stated that its confirmation should not be taken as an intimation that that was a proper valuation for rate making purposes. Mr. Bissell says that the Positas water right was only 900,000 gallons per day. Mr. Dillman (p. 10825) testifies that the high price was due to the fairly low cost of development of the Positas rights, and that the \$25,000 which was placed on the Mocho rights was for a much greater quantity of water which would cost more to develop.

Here, it seems to me, we have a very fair example of the influence of the cost of development on the net price and value of water rights. Leaving aside for the moment consideration of the small quantity of water involved in this Livermore sale, as compared with the Spring Valley supply, we have in the Positas right an available water right situated a few miles from the town of Livermore, suitable for domestic purposes, which could have been delivered to the town for a total capital investment of about

\$142,000, including the expenditures on the Positas, as I infer from Mr. Bissell's testimony that the entire property was sold for \$242,000, and that the water rights were valued at \$100,000.

Another feature of this sale was that, as Mr. Dillman testified (p. 8833), it was the power development which the Pacific Gas & Electric Company, as purchaser, desired to acquire, the water property being entirely auxiliary to the power part of the plant. Further on page 8836 Mr. Greene reads from the decision of the Railroad Commission, showing that of the \$242,000 that was paid \$91,000 was in common stock of the Pacific Gas & Electric Company, \$51,000 in a one year note, and \$100,000 in outstanding bond mortgage, so it wasn't a sale for cash in any sense.

MR. McCUTCHEN—The value of the common stock, though, was agreed upon, Mr. Searls.

MR. SEARLS—I presume it was.

But leaving all these considerations aside which affected the relevancy to the present case, we have a water right yielding water suitable for domestic purposes, situated so that it would cost but \$142,000 in the market per million gallons for its development and sale. Assuming that he could get the same rates for the product in Livermore as he could in San Francisco, which would be the most profitable from the standpoint of the investor, the Livermore right, which cost \$142,000 for the development, or the Spring Valley right, which cost \$700,000 according to Mr. Hazen's testimony, and about half a million per million gallons according to the testimony of our witnesses? Can there be any question which right the prospective investor would buy, assuming that he was in the market for a million gallons only, and that assumption is giving him the benefit of the wholesale development costs figured for the Spring Valley rights. At the same rates he could make about three times the profit by paying \$100,000 for the Livermore rights that he could make by paying \$100,000 for the San Francisco rights, which naturally would make the former three times as valuable, even if the power adjuncts were left out of consideration. If Mr. Herrmann had taken the \$242,000, which was the gross cost of the Livermore development, and stricken from that the cost

of delivering that water to San Francisco, it is safe to say that he would not have used it as an aid to his valuation.

That is the largest recent sale of which Mr. Herrmann speaks, and even that is of such small quantity as compared with the Spring Valley rights that it is entitled to very little consideration in comparison with them. It is like using the price of a 25-foot lot in the Parkside District as a basis for valuing the Merced Ranch, a practice which Judge Farrington frowned upon sternly in his decision.

His other references are to the Beckwith-Coult sale near Los Gatos of 2000 gallons a day, 1891, total price paid \$2000; Phillips-Osborn sale near Los Gatos, 1000 gallons per day, \$700 total price; some Southern California sales for from ten to thirty miners' inches, which would be from one to three-sevenths of a million gallons, for very small sums. Mr. Herrmann has omitted to state the sums which were actually paid, but has reduced them to a calculation per million gallons, presumably for the purpose of enabling the court to forget the ridiculously small amounts which were involved. His only excuse is that he believes the conditions of supply and demand are comparable. The one sale of which Mr. Herrmann speaks (p. 8815) that might be worth something in comparison with the Spring Valley rights is the Tulloch Ditch on the Stanislaus River, purchased in 1910 for \$650,000, but of course he includes in this—as it subsequently develops from Mr. Dillman's testimony (pp. 9033-9034)—all the existing structures, including a diverting dam, flume and tunnels, which were subsequently enlarged, and many miles of distributing laterals. Mr. Herrmann doesn't say anything about these structures, but divides the total price by the total yield and leaves your Honor to infer that the rate per million gallons of \$18,550 is what is to be compared, if anything. He then states that he has given it no weight because it isn't comparable—he doesn't say why it isn't comparable—as it appears from his cross-examination the only difference would be that the Tulloch Ditch water is not potable (pp. 9029-9031). He says on the same page that potability has not been a factor in any of the irrigation sales in Southern California which he has used as

a comparable basis, and in considering water for irrigation use there is no reason why there should be.

I am inclined to think, that on the strength of Mr. Herrmann's testimony, this Tulloch Ditch has very considerable bearing on the Spring Valley valuation. It also appears (p. 9035) that the purchase price may have been paid in bonds, although that is not certain. Mr. Herrmann further admits on cross-examination (pp. 9039-9041) that he has not considered the value of the water rights in any of the Imperial Valley Mutual Water Companies, with which he is intimately familiar, on the sole grounds that they existed by virtue of contract rather than by virtue of appropriation, and he has ignored all the Mutual Water Companies in the district in Southern California which do not grow citrus crops. Investigation by both the complainant's witnesses on the Southern California situation seems to have stopped short when it got through the citrus crop district. They didn't make any inquiry at all to ascertain whether or not other classes of crops were grown where the demand for water was for all that could be supplied, and I presume their conclusions would not have interested them if they had made the inquiry.

MR. GREENE—You agreed, Mr. Searls, that the Imperial Valley figures should be eliminated?

MR. SEARLS—Well, I am not claiming that they should be included.

MR. GREENE—I thought your inference there was that Mr. Herrmann was at fault for not considering them.

MR. SEARLS—I think he was; I think he might have mentioned them anyway.

Mr. Herrmann makes one other reference to the value placed by Judge Farrington on water rights in the 1903 case. The complainants have been very assiduous in presenting to your Honor all of the findings of Judge Farrington's valuation which they thought were of any benefit to them. How they expect your Honor to use it without knowing the testimony on which his findings were based, I am sure I do not know. We have prepared later in this case a continuation of Judge Farrington's valuation based on the

findings and principles which he outlined, and we show that the total valuation of the complainants' plant to-day, using his methods, would be but little more than half the figures reached by Messrs. Hazen and Metcalf. If your Honor desires to decide the case on the basis of this adaptation of Judge Farrington's decision, we have no objection; if your Honor desires to follow or overrule Judge Farrington's decision on principles of law, we have no objection; but we do think it grossly unfair for any of the plaintiffs' witnesses to pick out one particular finding in that valuation of one particular element, and say that that means anything, unless the testimony on which it is based can be understood. As a matter of fact, complainant's counsel knows that certain witnesses for the defendant in that case testified to values at least as great as those placed by Judge Farrington, on both water rights and reservoir lands, and their testimony was based on absolutely no line of reasoning except their unsupported opinions.

THE MASTER—The evidence in that case is not before me, is it?

MR. SEARLS—No, your Honor.

THE MASTER—There was some inclusion of matter in that former case, I don't know what it was.

MR. McCUTCHEN—That was on account of the death of witnesses who testified.

MR. SEARLS—There was included the testimony of Reynolds, Higgins and Wenzelburger; they had nothing to do with the intangibles, however.

o. Complainant's Testimony Not Convincing.

Now, in trying this case I have considered that it was an insult to the intelligence of the court to attempt to justify any valuation based on unsupported expert opinion. Some judge once said in the Knoxville decision that such evidence was about the most unsatisfactory that any court could deal with. I think that in fairness to the defendants in this case your Honor should not consider specific findings made by Judge Farrington based wholly on a record which is not before you, unless you should see fit to

familiarize yourself with that case, a practice which I don't see how you could follow, in view of the ordinary rules.

As I stated once before, the complainant's own witnesses have testified to the fact that the learned judge's findings as to the value of watershed lands could not be justified by any plausible real estate valuation. I think Mr. Grunsky himself has shown what a flimsy basis supports his reservoir land figures, and from anything that appears in the record in this case, equally unsatisfactory evidence may have been in that record as to the value of water rights.

I have spoken at some length—perhaps too great length—on the testimony of these witnesses for the plaintiff on water rights, but I feel so clearly that the principles on the basis of which they have worked are altogether illogical and unfair to the defendants in this case, that I desire to impress upon your Honor what may have been the apparent weakness in each point.

11. Defendants' Testimony as to Water-Right Values.

Before proceeding to a discussion of Mr. Lee's testimony, which is the only testimony presented in behalf of defendants as to the value of the Spring Valley water rights, I desire to refer briefly to the contention advanced by counsel in his argument on this subject, that Mr. O'Shaughnessy and Mr. Dillman had valued the company's water rights.

I shall prefix my answer by denying unequivocally that either of those witnesses did give any testimony which would aid your Honor in reaching a determination of the value of the company's water rights.

MR. McCUTCHEN—I said expressly, Mr. Searls, that Mr. Dillman had not expressed an opinion on the value of the company's water rights.

MR. SEARLS—I misconstrued the import of your statement then. You spoke of the testimony of the two witnesses together and said it was very important evidence.

MR. McCUTCHEN—I said that Mr. Dillman had expressed

an opinion as to water rights in another proceeding, but had not testified to the value of water rights here.

a. Counsel's Misconstruction of O'Shaughnessy's Testimony.

MR. SEARLS—Referring, first, to the portion of Mr. O'Shaughnessy's testimony which counsel read in his record, I call your Honor's attention to the very obvious effect of that testimony. Mr. O'Shaughnessy had been testifying that he did not consider the Pleasanton lands either used or useful during the years in controversy, because the yield of water was insignificant compared with the agricultural value of the lands. On cross-examination Mr. McCutchen had developed from him (10,745) testimony to the effect that he would have advocated the purchase of those lands if he could get 20 million gallons of water from them. But that his office records had shown this to be a physical impossibility; that he had asked Mr. Olney during the negotiations for sale to guarantee him as much as 10 million gallons, and that Mr. Olney, acting for the company, had refused to do even that (10742), but O'Shaughnessy would consider the lands worth purchasing if he could get 20 million gallons per day. On redirect examination I asked him the questions which counsel read into his argument, namely, that: assuming that he could get 20 million gallons from the lands, as a matter of physical possibility but would still have to make a settlement with the owners to the east of them, would he still consider the land worth buying? Thereupon your Honor called my attention to the fact that it would have been a question of price, and I said: Suppose it would necessitate the expenditure of as much as a million dollars to make these settlements, what would your recommendation be? O'Shaughnessy's answer was (10778): "The production of how much water?" "Q. Twenty million gallons of water." He then said it would be worth that for 20 million gallons of water. In other words he would have been willing to purchase the Pleasanton lands and pay a million dollars extra in order to get 20 million gallons daily of water, and, of course, he would have

the lands in addition to that. He said again on page 10779: "If you could gain 10 million gallons a day *beyond the present supply* it would be worth a million dollars."

On recross-examination Mr. McCutchen stated:

"Mr. O'Shaughnessy, I understand you to say, if you could get 20 million gallons a day from the Pleasanton properties (10800) you would be justified in paying a million dollars more—I don't know that you put it in just this way, but it was the impression that was made on me—a million dollars more than you would if you could only get 10,000,000 gallons a day; did you state that in substance?

"A. I don't think that was the question. I think Mr. Searls asked the question whether I would say a million dollars *more above and beyond all the land owned by the company* in the Pleasanton region for a guarantee of 20 million gallons a day; is that correct, Mr. Searls?

"MR. SEARLS—That was the thought I had in mind. The million dollars was purely a suggestion as an outside figure."

Now, the very obvious intent of all that testimony was that the witness was fixing the maximum sum which he would pay for lands and water rights in the Pleasanton district. Counsel, however, then sought to separate the additional 10 million gallons of water from the 20 million gallons that the witness had been talking about, asked him to assume that the output was only 10 million gallons, and that for a million dollars extra he could increase it to 20 million gallons, would he agree to that? The witness did not understand the question, and it was rephrased. He was asked if he would pay a million dollars more than he would otherwise pay for 10 million gallons if he could get the 20 million, and Mr. O'Shaughnessy answered that he would, and then counsel's final question was:

"Q. That is to say, you would be willing to pay \$100,000 per million gallons for the water alone?

"A. I would for the *additional 10,000,000 gallons.*"

Now, there was no question in my mind, at the conclusion of that testimony as to Mr. O'Shaughnessy's meaning. He said nothing about the value of water rights. He was dealing entirely with the question of the utility of the Pleasanton purchase, and its justification from a water-supply standpoint. The only effect that can be given to it, is to show that he would have been willing to buy the Pleasanton ranch lands and pay a million dollars extra if he could get 20 million gallons of water. The word "additional" which he includes in his final answer shows very obviously that that was his intent. I don't think that the witness intended to value anybody's water rights when he made that statement. If you are going to consider his total of two million dollars and a half as a gross valuation of the Pleasanton lands and rights, which is the only way that it could possibly be considered, in the light of his testimony, and you wish to determine from that the net value of the water rights, it will be necessary to subtract the value of the lands on some witnesses' real estate valuation before you can get the net value for water rights. Mr. O'Shaughnessy did not do that and there would be little use for my doing it unless I knew at what figure your Honor intended to exclude the lands. Mr. Lee has shown, in his valuation of water rights, that the only part of that purchase price of the Pleasanton Ranch lands chargeable to water rights is \$102,900. Of course that figure was made up upon the actual delivery, and not upon a hypothetical yield of 20 million gallons, so that I don't know what his figure would be on that yield. In fact, I do not see any clear way of deducing the net water-right figure from his testimony. I only desire to emphasize the fact that you can't, in fairness either to the witness or the defense, take one sentence of his testimony relating solely to an additional settlement necessary to perfect his title to the 20 million gallons and say that it represents his idea of the value per million gallons of all the Spring Valley water rights.

MR. McCUTCHEN—Mr. Searls, may I ask you a question here? What would he be paying the million dollars for?

MR. SEARLS—For securig the title to the first 10 million gallons, and enabling him, as a physical possibility, to get the additional 10 million.

MR. McCUTCHEN—But the question was, that is to say, you would pay a million dollars for the water alone.

MR. SEARLS—And the answer was, For the *additional* ten million gallons, Mr. McCutchen, and it clearly refers to his previous testimony.

On page 10721 he adopted Judge Farrington's valuation of \$2,100,000 for all the water rights of the company, and on page 10722, for water rights acquired since 1903 and 1904, he adds \$56,271 being the actual cost of the Washington and Murray township stock.

If counsel says that Mr. O'Shaughnessy was including merely Judge Farrington's views as to the water-right values in the report, I refer him to the fact that he has included, since 1903, only the actual cost which the company has paid since that date for its water-rights account. This comes nearer substantiating Mr. Lee than it does Mr. Herrmann.

Counsel has characterized this testimony of Mr. O'Shaughnessy as very important. I am content to rest on the record. As it stands its purport is perfectly clear to me, and it was at the time Mr. O'Shaughnessy testified. If there is any doubt in your Honor's mind on reading it over, I should be glad to call Mr. O'Shaughnessy for further examination. I did not ask Mr. O'Shaughnessy to value the water rights in this case, or any other elements of the company's property, because he could not take the time from his executive duties to prepare such a valuation. But, as counsel seems to be entirely dissatisfied with the testimony of his own witnesses, and anxious to rely on the testimony of ours, I regret that I did not accommodate him by having every engineer in the case tell him what his water rights were worth. Fortunately I am not in his fix. I am perfectly content to rely on Mr. Lee's valuation, and let it stand on both Mr. Lee's qualifications and upon the logic of his theory. I might have tried to embarrass counsel by bringing

into the record past valuations of Mr. Grunsky and Mr. Lippincott, but as he did not call these gentlemen for this purpose, I thought it would be only fair to let the issues be decided by the testimony of the engineers who were called to cover that subject and who, presumably, were the witnesses upon whom counsel desired to rely.

b. Dillman Did Not Value Water Rights.

So far as Mr. Dillman's testimony is concerned, as to the value of Livermore rights, it is a matter of still less concern. I have already shown, in discussing the Livermore sale, that the sale was in the first instance induced largely by considerations of power development, and, furthermore, that the total value of the structures necessary to develop the rights was only \$142,000. It would necessarily follow that water rights which could be developed for domestic use, with a total expenditure not exceeding the \$142,000 per million gallons would be, in the net, very much more valuable than water rights which require the expenditure of \$1,500,000 to \$700,000. Outside of that consideration, it was Mr. Dillman's opinion, expressed in the record, that the potential yield of the Mocho rights which he only valued at \$25,000 was much greater than the yield of the Positas rights which were valued at \$75,000. (10825).

What conclusion your Honor can derive from those figures as to Mr. Dillman's general opinion of the value of the water rights I do not know. I haven't been able to derive any. And I certainly haven't been able to derive the conclusion that Mr. Dillman thinks water rights in general, or the Spring Valley water rights in particular, are worth \$100,000 per million gallons.

With these passing comments on the testimony of Messrs. O'Shaughnessy and Dillman, I pass to a discussion of the testimony of the witness whom we did call to value water rights.

c. Lee's Qualifications.

Mr. Lee came into this case as well qualified as either of the complainant's engineers to speak on the subject of the

value of water rights in California. A graduate of the University of California, in which institution he had made special studies of hydrography, hydraulics, and water-supply problems, he was employed for a year with the United States Geological Survey on stream gaging and hydrographic work in the State of California. During the six years following he was engaged on the engineering staff of the Los Angeles Aqueduct, as assistant engineer, and, during four of those years was in charge of the water-supply investigations of Owens Valley, where he made exhaustive studies of the hydrographic conditions, in connection with the proposed development by the city of Los Angeles (9550, 9551) of portions of Owens Valley, this work involving an extensive study of the underground water supply. His report was adopted and published by the government as a public document. During that period he advised and assisted in connection with the purchase of riparian lands on Owens River, lands with ditch rights attached, and reservoir lands, both surface and underground. The actual closing of the purchases was mostly in the hands of Mr. John T. Martin, who testified here. He also made, during this period, an investigation of irrigation practice and conditions in the Owens Valley, including the mutual water companies operating there. During 1911 and 1912 he was in charge of field surveys for six large hydro-electric power plants and 300 miles of transmission line for the city of Los Angeles. In 1912 he made investigations and reports of underground water supplies for the California State Conservation Commission, the results of his investigations being published. He also made, during that year, a short field study and report for the Spring Valley Water Company on the evaporation factor of the Livermore Valley lands. Since 1912 he has been engaged in general hydraulic practice, including the appraisal of hydraulic, irrigation, and domestic water-supply systems, including their water rights, in connection with bond issues, and other financial transactions. He has been employed by the Cuyamaca Water Company of San Diego to make detailed studies in regard to their water rights and the

water yield, testifying as to the results of his studies before the State Railroad Commission. He has also made a study of Mutual Water Companies in various parts of the state of California, in 1912, in connection with the proceedings before the State Railroad Commission. He numbers among his clients the city of San Diego, the United States Geological Survey, the city of Los Angeles, the Cuyamaca Water Company, the Vulcan Land & Water Co. and the United States Public Health Service. He is thus equipped, by reason of his associations with both the public authorities and private water companies, to reach fair and unbiased conclusions as to water-right values. The record shows that the study which this witness made of the Spring Valley water rights before reaching his conclusions as to the values to be placed thereon was not equaled by any other witness in the case, very careful attention having been given by him, both to the yield of Spring Valley system, and to the development of the historical data relating to its original cost. He also made very thorough examination of all the obtainable data relating to mutual water companies and sales of water rights throughout the state, not limiting himself, as did the complainant's witnesses, to the investigation of a few companies operating in the citrus group districts. Nor did he start out, as did complainant's witnesses, with the assumption that the total yield of the water works necessarily represents the total water rights to be valued. He did make that statement in connection with his study of values derived by the use of comparative sales. But he afterward qualifies it by saying that a part of this water yield was necessarily values by the real estate and structural appraisers. (9929-30).

d. Yield of Spring Valley System.

In order to meet the contention advanced by counsel's witnesses that the measure of the water rights was the total yield of the system, and that that total yield, for valuation purposes, was 40 million gallons or more, it was, of course, necessary for us to introduce evidence as to what this total

yield was. And Mr. Lee has given his testimony on this subject in Exhibits Nos. 187 and 188.

It was, of course, also necessary for him to have this data in order to reach a valuation by the comparative sales method, a method which, as I have indicated, is not fairly applicable to the Spring Valley system in view of the complex nature of their rights.

c. Alameda System Yield.

For the purpose of determining this yield he made careful studies from the records of the stream flow in Alameda Creek, and the pumping records at Pleasanton, deriving therefrom conclusions as to the average yield of the Alameda system during the years in litigation. The results of his studies are graphically represented on Exhibit 187. This exhibit is of particular interest as showing the high percentage of stream flow which is embodied in the peaks, which immediately follow each heavy rainstorm, and rapidly fall off. Mr. Lee makes a point that the quantity of the yield for valuation purposes, of a domestic supply, should not be the maximum quantity that the company diverts for one month, but rather the maximum dependable yield of which the company can insure delivery (9695). This, he finds, over an average of years, to be 35.8 million gallons (9729). On page 9695 he includes a table showing the total daily diversion for each of the years in controversy, and if your Honor should conclude to use the average daily diversion for each year as a basis of multiplication you have the figures there. Under no circumstances can I conceive that a diversion for one month would entitle the company to a valuation on that basis, as it does not, in any sense, measure the extent of its water rights. From the hydrographic standpoint it is no indication of a dependable yield, and from the legal standpoint it would not give the company rights as against anybody. Counsel asserted in his argument that if the company took a given quantity of water, and had taken it, that that was a measure of its right because no court would enjoin a public utility in the

course of its duty to supply water to the municipality—the most that could happen would be a judgment for damages for taking water in excess of the amount to which they were legally entitled. In the first place, I do not think that his statement of the law is quite accurate, because I think if they had taken water for one month, no court in the land would conclude that that was a sufficient taking to put the overlying land owner on notice and give him an opportunity to defend his rights. Counsel does not contend that if the land owner should apply for an injunction before the company had taken the water without compensating him, but that that injunction might well be granted. Now, the mere fact that they had taken it for one month might be just sufficient to put the man on notice that they were taking it, or he might not have noticed even at the end of that time.

MR. McCUTCHEN—I do not understand, Mr. Searls, that it is a question of notice at all, the question is, has the public interest attached?

MR. SEARLS—You mean that that attaches the first day you take delivery?

MR. McCUTCHEN—Yes.

MR. SEARLS—Under what circumstances would he be entitled to an injunction? Just because he thought you were going to take it, do you think?

MR. McCUTCHEN—If he knew we were going to take it, and applied for preventive relief before we took it and before the public was supplied, he might get an injunction.

MR. SEARLS—I would be interested in seeing a case that holds that the taking of water for one month would be such a taking that would justify the conclusion that you seem to arrive at.

The answer to counsel's argument is obvious: If he is going to use the maximum yield as a measure for his right and base his right to take a portion of that yield on no stronger ground than that no court of equity would issue an injunction against the taking of it, he must use, as the measure of value

of such a right, the sale price of similar rights. He should not take the sale prices of adjudicated rights and apply them as a test for valuing rights which have not been adjudicated, and for the continued use of which the complainant may well be compelled to pay out large sums of money in damages. Counsel ingeniously suggests that after they have paid out those large sums they might be added to the cost of the right and be considered as an additional valuation.

MR. McCUTCHEN—You put that question to me, Mr. Searls, but I don't think I made that answer to you.

MR. SEARLS—I put the question to you and you suggested that it would be added.

MR. McCUTCHEN—No, I said it might be; it would be determined when the situation arose.

MR. SEARLS—In other words, the contested right of the company to divert at Pleasanton is not as valuable as its conceded right to divert at Crystal Springs Dam. Nor would any purchaser be reasonably expected to pay the same price for both of them if he knew that in the one case he would probably have to make expensive settlement with the adjoining land owners while in the other case his right would be forever free and untrammelled. This question of total yield does not become very important from the defendant's point of view, because Mr. Lee's valuation is based on the original cost of the water rights in gross. The company never bought any water on the basis of million gallons daily. The yield only becomes important if the methods of valuation adopted by Messrs. Herrmann and Anderson be accepted. But, obviously, you cannot take the price of a hundred thousand dollars per million gallons daily, used by these gentlemen, and apply it with fairness to the maximum delivery that the Alameda pipe line will carry, because during most of the years in question the company had not developed any such right. It might be better to take the daily deliveries as shown by the annual records for each year. I think the simplest way out of it, however, would be for your Honor to find the value of the rights in gross, and

you will not be under the necessity, then, of determining the question of yield.

f. Yield From Peninsula Sources.

With respect to the peninsula sources, however, I object very strenuously to the adoption of the yield as the measure of value. As I have shown in my opening statement on water rights the great bulk of water derived from peninsula sources is freshet water which the company captures and impounds by virtue of its ownership of the lakes and structures, and which no riparian owner on either San Mateo or Pilarcitos Creek could ever stop them from taking.

If your Honor can determine from the evidence the continued normal flow of San Mateo Creek, and Pilarcitos Creeks, including the ordinary high water in winter, and low water in summer, that might furnish a basis for valuation per million gallons daily. And even in that case you should make allowance for the riparian rights which the company itself has by virtue of its ownership in fee of land included in the rating base. I call your Honor's attention, also, to the fact that the only calculations that Mr. Lee has made, tending to show a value on the Spring Valley rights per million gallons daily, have been made for purposes of comparison with the plaintiff's witnesses, as he rejects the market value method entirely. He says, at the conclusion of his testimony (9792) that if his total valuation be divided by the yield an amount of approximately \$54,000 per million gallons daily is obtained (9729), but it is very evident all through his testimony that it was the total figure which he considers significant and not a price per million gallons daily.

MR. McCUTCHEN—Suppose we were building Crystal Springs dam today, and the Pilarcitos dam, how much water would we have the right to hold back, and assume that we had not acquired any riparian rights on either of those streams?

MR. SEARLS—You would have a right to hold back all

of the flood waters of the creek, unquestionably; the lower riparian owners could not stop you.

MR. McCUTCHEN—What is the amount of that flood flow?

MR. SEARLS—It is my conclusion that it is approximately 13½ million gallons, based on the study I have made of the testimony in this case.

MR. McCUTCHEN—Suppose one of those lower riparian proprietors had in the meantime taken the water, could we still take the flood flow and keep it from that lower riparian owner?

MR. SEARLS—Assuming you had not acquired the riparian rights, do you mean?

MR. McCUTCHEN—Yes.

MR. SEARLS—In that case you would be in the same position you would have to take if you considered the reproduction theory and make some assumption as to buying the rights that were standing out and in use. Mr. Lee did that.

MR. McCUTCHEN—If a lower appropriator had taken the flood water, upon the purchase of these lands subsequently to that, and the erection of dams, would not that, so far as the lower owner is concerned and his getting the flood water, be an obstruction to those flood waters?

MR. SEARLS—The answer to that is that it is a physical impossibility for the lower owner to divert the flood flow.

MR. McCUTCHEN—But it goes to the soundness of your argument, Mr. Searls, as to the right attaching to the land. That is what I am getting at. If you are right, and some lower riparian proprietor had actually made use of those waters, we could cut off that flood flow to him, because you say that that is a right that attaches to our land and that it is not something that we got by appropriation.

MR. SEARLS—Why do you want to make that assumption when it is contrary to every physical fact in the controversy?

MR. McCUTCHEN—As I say, I am trying to test the soundness of your argument.

MR. SEARLS—Well, I am not arguing the case on the theory that it will stand against every possible test that may be put up against it in some other locality; I am arguing this case on the record that is before us and on what I consider is the law.

MR. McCUTCHEN—Well, if that is a right that attaches to our land, then we could at any time, no matter what use had been made of the water by somebody below, whether an appropriator or riparian proprietor, we could put an obstruction there and cut off the flow to that man below, that is, if it is something inherent in our land ownership.

MR. SEARLS—You certainly could if you needed that water.

MR. McCUTCHEN—You would not say that if somebody below the Crystal Springs dam who had actually appropriated the water and made use of it, that we could subsequently construct the dam and hold it back against him, would you?

MR. SEARLS—No.

MR. McCUTCHEN—That is what your argument leads to.

MR. SEARLS—I don't think it does. My position is that we are required to value only that which it is necessary to have in addition to your lands and structures, in order to enable you to give the service that you do. The corpus of the water does not add to the value, because you are paid for that in your rates.

MR. McCUTCHEN—Does not that lead you to this, that we are not taking that water, that flood water as you call it, by virtue of the ownership of our land, but we are doing it because we have appropriated that flood flow?

MR. SEARLS—No, sir, it does not, I do not think it leads to any such conclusion. You are simply impounding and diverting, by reason of your ownership of lands and structures, flood water which no one below you could divert for lack of storage possibilities and which would otherwise waste to the bay.

THE MASTER—You may proceed, Mr. Searls.

g. Lee's Valuation of Water Rights.

I shall not read Mr. Lee's direct testimony into the argument, believing that your Honor will examine the record in due time, but I call your Honor's attention briefly to the method which he employed.

Having determined the yield of the Spring Valley system, the original cost of the rights, the reproduction value estimated on the basis of reasonable hypothesis, and the value based on comparative sales, he concludes that the original cost furnishes the best indication of present value, and reaches his final valuation on this basis.

h. Methods of Cost Determination.

It is unnecessary for me to go into details as to the method by which he reaches the original cost as his figures approximately check those used by the complainant's witnesses for these items. The principle differences lie in the estimates of the cost of delivering water to certain of the riparian-right grantors under the terms of their deeds, and also the cost of the right to take water from Pleasanton gravels.

So far as the first of these questions is concerned, Mr. Lee has made the assumption which I submit is entirely reasonable, that the condition imposed by the grantors of certain riparian rights on San Mateo and Alameda Creeks, to the effect that the company should deliver to them at a nominal price, or free of charge, a certain quantity of water, is, in effect, a reservation of the amount of water to which these grantors were already entitled in the reasonable exercise of their riparian rights. The operation expenses incident to the delivery of these various quantities of water, and the structures necessary for such delivery, have been accounted for in the company's operation expenses, and in the structural inventory. It therefore seems that there is nothing to be capitalized, in the way of obligations to deliver.

On page 9579 of the record Mr. Lee has set forth in tabular form a showing that the quantity of water which the company was required to deliver to these various riparian owners under the terms of their grants was actually less than the

amounts to which they would have been entitled in the exercise of their riparian right, thus indicating that the conditions in their conveyances were, in effect, nothing more than reservations of the water to which they were already entitled.

i. Cost of Pleasanton Rights.

With respect to the Livermore Valley waters we were confronted with the proposition of estimating the proportion of the original cost of the Pleasanton ranch lands which could be properly ascribable to water-right value, as it is our contention that the lands themselves should be excluded from consideration in fixing the rating base. This work Mr. Lee undertook and, after a very careful study of the situation at Pleasanton, of the well records, and of the cost of pumping, all of which is shown in Defendant's Exhibit No. 189, and on pages 9620 to 9636 of the record, came to the conclusion that the cost of that water to the company could be very well segregated from the cost of the land overlying it by determining the damage which would result to the land from the withdrawal of the amounts of water to which the company had shown itself legally entitled. This, he felt, could be best measured by determining the additional costs of pumping necessary for the proper irrigation of the Pleasanton lands which would be incurred by the owners of those lands by reason of the Spring Valley Company's withdrawing the water from beneath them, and lowering the water table. He says (9632):

"The increased annual cost of pumping for irrigation from wells on tracts was computed for a duty of one and a half acre feet per acre. From item No. 1 of the cost data it was concluded that a figure of 7 cents per acre foot, lifted one foot, would represent the average operation cost for the range of lifts involved in Livermore Valley. This, multiplied by the duty, gives the increased operation cost per foot of lift per acre. To this was added interest charges on tracts within the former flowing-well district. This amounted to 14 per cent. on \$8.13 per acre, or \$1.14 per acre. Interest charges were also added on tracts outside of the flowing-well area, where the maximum lift was increased to exceed 40

feet. The amount was 29 cents per acre, or 14 per cent. on \$2.11 per acre, the increased cost of the motor and deeper pit necessary for the increased lift. It was determined from well logs that, prior to the Spring Valley Water Company's operation, 12-inch casing wells 80 feet deep would penetrate water-bearing gravels to a sufficient depth to insure a permanent supply within the artesian area, and wells 100 feet deep within the open gravel reservoir area. The maximum lowering of the water plane, due to the Spring Valley operations, plus local draw-down due to the pumping from the well, was on no tract great enough to lower the water level in the well to within 10 feet of the bottom. It was therefore not considered necessary to include any fixed charge for increased capital cost of wells. The increased cost per acre, multiplied by the acreage and total for all the tracts, gives the total damage for the whole area which, capitalized at 6 per cent., gives the total damage. This is shown at the bottom of Tables 4 and 4-A, and is \$102,990 for the Pleasanton ranch lands, and \$14,439 for the well tracts north of County Road 2000."

The extra allowance of \$14,439 for water rights beneath the Pleasanton well tracts was, for the years prior to the installation of what is known as the G. & H. lines of wells. After those wells were installed, which was in 1913, the entire value of the land on which they are situated was allowed in the rating base, including the apportionment of the cost of the Livermore Valley water rights, determined in the foregoing manner.

Mr. Lee finds the estimated original cost of water rights, as of December 31, for each of the years 1907 to 1914, inclusive, to be as follows: (9619)

Year	Estimated Original Cost
1907	\$1,756,525.82
1908	1,756,525.82
1909	1,756,525.82
1910	1,766,301.32
1911	1,925,964.32
1912	1,912,671.32
1913	1,932,988.82
1914	1,933,988.32

Your Honor will recall that our stipulation provides that the valuation for each year shall be taken up to December 31 of the previous year.

THE MASTER—He figured the value of the different years by reference to their cost originally. Is that the idea?

MR. SEARLS—Yes.

THE MASTER—What was it that determined the difference between the different years?

MR. SEARLS—It was the acquisition of that Murray Township stock, and in part the increased cost of pumping, due to the operations of the company in later years.

THE MASTER—I think you have misunderstood me. I am trying to recall to my mind now the formula by which he changed the value as of the different years involved in these eight suits that we are trying. This ditch stock was not bought in that period, was it?

MR. SEARLS—I think it was.

MR. McCUTCHEN—Some of it was, your Honor.

MR. SEARLS—The Clough case was compromised and some money paid over to Mrs. Clough.

THE MASTER—Some of these rights were actually acquired in this rating period from 1907 to 1913?

MR. SEARLS—So far as the purchase of that stock enabled them to procure their rights to the Murray and Washington Township ditch right it did.

MR. McCUTCHEN—Those differences were due entirely, were they not, Mr. Searls, to increases in the investment?

MR. SEARLS—That is my impression, Mr. McCutchen.

MR. McCUTCHEN—At any rate, they do not have anything to do with the quantity of water diverted?

MR. SEARLS—No, not as determined by original cost, except at Pleasanton, I think it did have some effect on the figures he reached there.

Mr. Lee's total original cost, exclusive of the Livermore Valley rights, for the year 1913, would be \$1,830,088.82, comparable with Mr. Herrmann's estimate of \$1,845,555 (8826)

and Mr. Anderson's estimate of \$1,510,061.58 (8790), showing no wide divergence from these figures.

THE MASTER—They are estimates of what?

MR. SEARLS—Of the original cost of the rights.

THE MASTER—And that includes no diversion at the Pleasanton pumps at all?

MR. SEARLS—It includes no allowance for the value of the underground waters at Pleasanton.

These figures show that no wide divergence between the witnesses existed on that question, Mr. Lee being quite a little higher than Mr. Anderson, and about \$15,000 lower than Mr. Herrmann.

j. Reproduction Cost.

Mr. Lee next made a study with a view to determining whether the reasonably probable reproduction cost of the Spring Valley water rights, as of December 31, 1913, could be determined, and in reproducing these rights he proposed to reproduce just what rights the company has in addition to land and structural ownership, and nothing further.

He determined from recent purchases of riparian rights by the city of Santa Cruz, in 1912, and from certain older purchases, and also the increase in assessed values of real estate in Washington township, in Alameda County, and in Santa Clara County, during the years succeeding the original purchases by the Spring Valley Company in those counties, an average annual rate of increase, which he found to be 1.89 per cent. in Santa Clara County, and 1.88 per cent. in Washington township in Alameda County (9652). Taking all these factors into consideration, he estimated the cost of reproducing the various riparian rights in Alameda County with the same percentage of enhancement as applied to land values. In San Mateo County, however, where the increase in value of real estate adjoining San Mateo Creek has been entirely due to residential development, there being, as it appears from Mr. Ellis' testimony given just prior to the argument, not to exceed 10 acres of agricultural land riparian to this creek, Mr. Lee concluded that the riparian rights

appurtenant to this land ought to be reproduced for the same price that was paid originally, and figured accordingly.

THE MASTER—Why exclude the notion of increase due to residence development?

MR. SEARLS—Simply that the presence of water in San Mateo Creek had nothing to do with the increase in that value. We contend that the diversion and storage of that water by the company at the Crystal Springs dam was a distinct benefit rather than a detriment to residential development.

THE MASTER—I thought from what you stated he was trying to get a ratio of increase of property values, so as to apply it to some prior base, and would apply it to some original base of water cost so as to consider the hypothetical reproduction cost. Now, on that basis of land increases due to residential influences, it will increase at a larger rate than if it is farming land; and the water that goes along with that land would be subject to the same influences and would be needed for domestic use and would increase much more rapidly.

MR. SEARLS—I cannot appreciate that line of reasoning, because the existence of the water right appurtenant to that particular land there is of no value whatever from the domestic standpoint, aside from the small amounts that were reserved by these riparian owners. The owner of a town lot on San Mateo Creek could not utilize the water of that creek for domestic purposes, it requires storage.

THE MASTER—I appreciate that, but that was not the thought that was in my mind. I thought that what you were saying with respect to Mr. Lee's position was this: In his reproduction estimate he was endeavoring, by a system of ratios of increase in value to find out the value of water rights on a process of acquisition, and he found out what was the ratio of increase in the excess value of real estate—

MR. SEARLS—In Alameda County, adjoining Alameda Creek.

THE MASTER—Yes; and so he used that ratio of increase

upon some prior base as to water rights to determine the reproduced value of water rights.

MR. SEARLS—That is correct so far as the Alameda Water Rights are concerned.

THE MASTER—Yes, a farming community; now, when he went over to San Mateo, where the increase in the assessed valuation was presumably at a much higher ratio because of the influence of the residence subdivision, he threw that out because he did not think it would affect the water right.

MR. SEARLS—That was his contention.

THE MASTER—As I say, I don't see any reason why water rights, as an incorporeal hereditament would not increase just as rapidly as the land; over in Alameda County you have an agricultural community, and over in San Mateo County you have a suburban community, and if land increases in an increased ratio in the latter case, why should not the water that was needed for residences increase in the same increased ratio? It has nothing to do with the appurtenance of the stream. I am looking at the water right as a separate thing.

MR. SEARLS—I don't see why, in figuring the reproduction of these rights, that that consideration would have any influence on the price which the company would have to pay to the owners of town lots on San Mateo Creek, for the privilege of preventing San Mateo Creek from flooding their lots, a thing which might be desirable from an agricultural point of view, but which would be a very great detriment from a residential point of view.

MR. McCUTCHEN—Does not the testimony of Mr. Wadsworth indicate that that locality is very badly in need of water for domestic uses?

MR. SEARLS—I don't recall that, Mr. McCutchen; you may be right.

MR. McCUTCHEN—I think Mr. Wadsworth testified that the water was badly needed in all the peninsula towns.

MR. SEARLS—I presume the peninsula towns are in the market for all the water they can get.

MR. McCUTCHEN—Do you think those land owners down there would want to part with the title to this water and permit it to be taken away from that watershed?

MR. SEARLS—I think they would be very glad to.

MR. McCUTCHEN—You think they would, notwithstanding their need for water for domestic uses?

MR. SEARLS—It would enable them, perhaps, to get some water for domestic uses. Mr. Lee made the assumption that there would be a diversion of that water for domestic use.

Mr. Lee concluded that the riparian rights to this land ought to be reproduced for the same price that was paid originally, and figured accordingly. He then concluded that it would be necessary to make some assumption as to the probable use of the waters of these creeks in 1913 and took this factor into account in his estimate. He assumed that the water of Alameda Creek would be used for irrigation purposes, and that some small domestic use might have been made of San Mateo Creek waters. These hypotheses are, of course, speculative, even if they do appear reasonable, and it was largely this factor which led the witness to discard reproduction method as furnishing no satisfactory basis by which to obtain the market value of the water rights.

With respect to San Mateo Creek, your Honor will recall that he made the assumption not that the water would all have been appropriated for use in San Francisco because that would lead him right around to the point he was trying to get at—what was the value of these rights for domestic use; he did make the assumption that some smaller storage would have been effected in the neighborhood of the Crystal Springs reservoir and the water diverted for domestic use in San Mateo County, and he made an estimate as to the price that would have to be paid in order to buy up those rights in use. I think the assumption in itself is reasonable enough, that the tremendous cost of storing all that water in San Mateo Creek could not be borne except by a community which could furnish a market for all the water that they would there produce, and I don't think

that showing has been made by any witness in the case as to San Mateo County alone. Is that your impression, Mr. Greene?

MR. GREENE—I don't think you are correct, Mr. Searls. I think Mr. Anderson and Mr. Herrmann both said that if the water had not been used for this purpose that there was more than a sufficient demand for it on the peninsula for other purposes.

MR. SEARLS—At any rate, it is an assumption anyway you take it.

By using it, however, he came out with a figure, in toto, of \$1,611,584 (9671) including the same allowance for reproducing the Livermore Valley rights as he had estimated in his original cost estimate. This figure is about \$300,000 less than the original cost, the reduction resulting largely from the excessive prices originally paid for the Calaveras purchase and the water company's stock at Lake Merced.

In connection with this study the witness estimated, in detail, the cost of a typical irrigation system for the irrigation of lands on the Niles Cone, and assumed that that system would have to be bought out in reproducing the rights.

It is obvious to anyone that the figure which would be reached on a reproduction estimate will vary principally with the assumptions which are made as to the use to which this water was being put in 1913. No two estimators would figure the same use, and it is impossible to say who was right. These considerations were largely responsible for discarding this theory.

k. Comparative Sales Basis.

Finally Mr. Lee made a study of the value of the Spring Valley water rights, based on comparative sales. This study largely parallels the one which was made by Messrs. Herrmann and Anderson. For the purpose of this computation, and for no other purpose, the witness assumed the average daily yield of the Spring Valley system, as determined by his hydrographic studies, as the quantity to be valued, and then determined a price per million gallons daily, based on the value of the

water in the vicinity of San Francisco Bay for the highest alternative use, which is the use for irrigation purposes. Three lines of inquiry were followed (9698): first, water-right values, as indicated by the value of the shares of stock in mutual water companies operating in southern and central California, and irrigating land having similar type of products to the land in the Santa Clara Valley and on the Niles Cone. Second, water-right values in Santa Clara Valley, as determined by the increment in land value resulting from the application of irrigation water, although he does not derive any conclusion satisfactory to himself from this second study. Third, water-right values in central and northern California, and as indicated by the sales of appropriated water rights, exclusive of physical structures. The most important of these studies was the one relating to the water-right values as determined by the value of shares of stock in mutual water companies.

1. Mutual Water Co. Values.

In selecting mutual water companies for comparative purposes Mr. Lee found that, in general, they fall into three classes, first, companies operating in exclusively citrus crop districts, secondly, companies operating in districts with citrus and diversified crops; and, third, companies operating in districts where diversified crops and no citrus are grown, the diversified crops comprising such products as walnuts, alfalfa, deciduous fruits, vegetables, grain, and so forth. He determined that the gross water-right value of the stock of companies growing exclusively citrus fruits was about \$109,600 per million gallons daily; that the gross water-right value for companies growing citrus and diversified crops was about \$47,900 per million gallons daily; and, third, that the water-right value of companies irrigating diversified crops but no citrus fruits, was about \$13,600 per million gallons daily (9703).

In selecting all of these companies for comparison he assumed (9711-12) that the conditions which would make the value of their water rights comparable with the market value of

water rights in the Bay region were one, equally limited available supply; two, demand for the full volume of the supply; and, three, irrigation service in raising of crops such as alfalfa, deciduous fruits, and so forth, and the class which was grown in the Bay region. It will thus be noted that he has added to the criteria of Messrs. Herrmann and Anderson the fact that the utility of the water rights must be governed by the same conditions as would govern other utilization in the vicinity of San Francisco Bay, this additional criterion, in Mr. Lee's opinion, being absolutely necessary to establish the comparability of the water-right values.

By comparison with the gross value of water rights of these mutual water companies, in Southern and Central California, Mr. Lee derives a figure of \$15,500 (9712), and concludes that that figure would fairly represent the gross value of water rights on Alameda Creek, used in irrigation. Subtracting from this gross value the estimated cost of an irrigation system which would irrigate the land adjacent to Alameda Creek, Mr. Lee obtains a figure of \$7,950 per million gallons daily, or approximately \$8,000, as representing the net water-right value, based on mutual water company data (9713-15).

m. Santa Clara Water Right Values.

I have already shown the fallacy and error in all the arguments advanced by Mr. Anderson as to the value of water rights in the Santa Clara Valley. Mr. Lee criticizes Mr. Anderson's testimony in this respect on page 9715 to 9717 in the record. Not having any first-hand knowledge of Santa Clara Valley land values he does not attempt to estimate in his original study, the value of the water rights, based on such land enhancement. However, after Mr. Atkinson had testified that the average increase in the Santa Clara Valley was about \$50 per acre (9496-8) as the result of the application of water Mr. Lee did make a calculation, based on Mr. Anderson's assumption, of 1.13 acre-feet of pump water in the 7 months irrigation season, that the net value per million gallons daily on that basis would be \$29,000.

MR. McCUTCHEN—With reference to Mr. Atkinson, he does not do anything more than determine the cost of a pumping plant on land which is known to have percolating water in it.

MR. SEARLS—You are mistaken, Mr. McCutchen; he determines the additional selling price of the land after the water is developed.

MR. McCUTCHEN—Exactly, but the water is in the land; all he does is to put a pumping plant on to get it to the surface.

MR. SEARLS—I suppose the water is there or he could not pump it.

MR. McCUTCHEN—Should you not make your comparison between land that has water and land that has not water? That is the comparison Mr. Anderson made.

MR. SEARLS—There is not any land in Santa Clara Valley that has not water under it.

MR. McCUTCHEN—I think you are mistaken about that. I think I could point out large areas of it to you that has no water under it. However, that is my understanding of Mr. Atkinson's testimony, that he simply determined the cost of the pumping plant.

MR. SEARLS—I think you have misapprehended his testimony. I have given the references to the pages of the testimony and your Honor can determine the matter.

So far as the comparative-sale data is concerned Mr. Lee had certain data in his possession which he acquired from another witness whose testimony was later stricken from the record, so of course, no reliance is to be placed upon information from that source.

n. Cherry River Purchase.

I do wish to refer your Honor, however, to the very important corroborative testimony of Mr. O'Shaughnessy, given in his statement of the price actually paid by the city of San Francisco for the Cherry River rights, purchased from Ham Hall for use

in connection with the Hetch Hetchy project in the year 1909-10. It appears that (10515) the city paid \$1,052,000 for water rights which Mr. O'Shaughnessy estimates will yield between 175 million and 200 million gallons per day, and which, it was estimated at the date of the purchase would yield from 150 to 200 million gallons per day, thus indicating a price of from \$5,000 to \$8,000 per million gallons daily for a water supply in every way suitable to the municipal purposes, dependable in yield, and much superior to the Spring Valley supply in potability. While some allowance should be made for the fact that this water was not developed and in use at the time the city bought it, the validity of the Ham Hall titles had never been assailed at that time, and upon the city's acquisition a good title was vested by reason of the voting of the necessary bonds to develop the rights. (See Sec. 1416, Civil Code.)

MR. McCUTCHEN—How could they have been assailed?

MR. SEARLS—By anybody who wanted to attack Mr. Hall's title.

MR. McCUTCHEN—He was not doing anything.

MR. SEARLS—He kept up the development work necessary to keep them good.

It will, of course, be argued by counsel that it may cost more to develop these Cherry River rights than it would the Spring Valley rights, that they are farther away and that, to that extent, they are not comparable. However that may be, it seems perfectly obvious that there can be no such difference in the cost of development as would be indicated by the ratio between \$8,000 and \$100,000 per million gallons daily. You could multiply the price per million gallons (daily) actually paid by the city in gold coin for these rights by six and still not exceed the figures which Mr. Lee finally reaches. Since the trial of this case closed contracts have been let for the work necessary to put a substantial portion of these rights to a beneficial use, and, at the conclusion of this argument, I hope to be able to give your Honor a first-hand impression as to the manner in which their development is being carried on. It also appears from Mr. O'Shaughnessy's testimony that all of the city's

rights on both the Cherry River and in the Hetch Hetchy Valley have very valuable power possibilities which do not attach to any of the Spring Valley rights. This should very largely tend to compensate for any carrying charges or increased development costs.

o. Lee's Conclusions as to Valuation.

To come back to Mr. Lee's testimony: He finally concludes that, on the basis of alternative irrigation use, the market value of the Spring Valley water rights, per million gallons, in this locality, would not exceed \$8,000.

The witness then proceeds to sum up all of his studies. He finds that the company's water rights originally cost, approximately, \$1,900,000; that, on any reasonable hypothesis, they could be reproduced for about \$1,611,584 (9671). That the market value of the rights would not exceed \$8,000 per million gallons daily (9715-26), and even if multiplied by the total yield of the system, and not merely the quantity of the rights which the company has, independently of its land ownership, would give a gross valuation of about \$286,400, based on comparative sales for irrigation purposes.

He then proceeds to discuss these results and compare them. I shall read, briefly, his concluding testimony:

"A. In the foregoing three analyses I have given the original cost of the Spring Valley Water Company water rights—the estimated cost of reproduction and a valuation showing what the valuation per million gallons would be, based upon the market value of water rights used in irrigation under similar market conditions in other localities. To my mind' the original cost of the water rights furnishes the fairest basis for estimating the value of these water rights for rate-fixing purposes. (9727.)

"The reproduction cost, as I have estimated it, gives an amount less than the original cost, due largely, of course, to the fact that the company appears to have gotten practically nothing in the way of water rights for some \$800,000 of the \$1,000,000 paid for the Alameda Water Company purchase and the \$150,000 paid the Lake Merced & Clear Lake Water Company. This method is not entirely satisfactory to me as applied to the reproduction of water rights, because it inherently in-

volved more or less speculation and assumption, which unavoidably leads to widely divergent results.

"The valuation of the rights based upon market value of similar rights is equally unsatisfactory. The entire absence of water-right sales in the vicinity of the Spring Valley Water Company properties renders the normal application of the method impossible. The attempt to ascertain market value of similar water rights under similar market conditions in other localities offers as wide an opportunity for speculation and assumption as does the reproduction cost method.

"Furthermore, if these water rights are to be compared with rights in other localities for the purpose of valuation I believe that the only fair basis for comparison is to select similar market conditions, involving not only a demand for the full supply in a limited supply, but involving also soil products which are comparable in value. Taking these three factors into consideration, I find that the value of the Spring Valley water rights does not, in my opinion, exceed \$8,000 per million gallons daily, or a total of \$286,400, which is far less than the original cost. For this reason it would obviously be unfair for the company to adopt such a value.

"The original cost of the Spring Valley water rights as a basis of valuation for rate-fixing has a number of elements in its favor. Its amount can be ascertained with reasonable certainty, thus removing it from the realm of speculation. It is just to the company and protects it in its investment. It is not unfair to the consumer. It involves no element of uncertainty as to basis of comparison with other water rights."

THE MASTER—It must be unfair to the consumer if the amount is extravagant, as Mr. Lee seems to think. He says they spent \$800,000 for which they got nothing.

MR. SEARLS—On the other hand, there were on the peninsula some considerations which offset that, looking at it from a purely equitable standpoint.

"There is also to be considered the influence in recent years of legislation and governmental control of public utilities. The modern tendency both as expressed in legislative act and in the decisions of the State Railroad Commission has been toward original cost as a basis of value for water rights. The State Water Commission Act now in effect contains a clause

providing that permits to use water or rights granted under the terms of the act shall not be assigned any value in excess of the actual amount paid to the State therefor either in connection with valuations for rate-fixing purposes or for sale to the State or any city or district. The State Railroad Commission has adopted original cost as a value for water rights in at least one rate decision (Decision 1534, San Jose Water Co.) and probably in others, including a valuation for sale and condemnation. With the regulating power exercised by this commission over public utility rates and sales of public utility properties these tendencies cannot but have their influence in establishing first cost as market value.

"After careful consideration of the subject it is my best judgment that the original cost of the water rights of the Spring Valley Water Company represents the fairest basis for estimating the value for rate-fixing purposes. I have estimated this value to be \$1,932,988.82 up to December 31, 1913. If this amount be divided by the yield of the water rights, 35.8 million gallons daily, a result of practically \$54,000 per million gallons is obtained. Expressed as totals, my best judgment of the values for rate-fixing purposes of the water rights of the Spring Valley Water Company, for the various years under consideration in this case, is as follows:

1907	\$1,756,525.82
1908	1,756,525.82
1909	1,756,525.82
1910	1,766,301.30
1911	1,925,964.32
1912	1,912,671.32
1913	1,932,988.82
(9729) 1914	1,932,988.82"

p. Complainant's Objections to Original Cost Method.

I shall now proceed to deal with the principal objections which counsel raised as to the methods and conclusions reached by Mr. Lee on cross-examination.

THE MASTER—Before you go on with that, Mr. Searls, it occurs to me that Mr. Lee is using the precedents established by the Railroad Commission in much the same way that plaintiff here is using the precedent established by Judge Farrington and to which

you object. Now, of course, the fact that the Railroad Commission values by reference to original cost does not establish the rightfulness of that method of valuation. I rather understood Mr. Lee as saying that such a practice must have its effect on the estimation of the public and the determination of market value in transactions between individuals. You will remember that Mr. Cory used Judge Farrington's decision as to reservoir value in this same way: He said it might be wrong, but that the people follow it. Now, the question therefore is, while it is true that Judge Farrington's opinion is not binding on the Court in this case, and while, as you say, the injustice of taking one thing that is favorable and leaving out another thing that is unfavorable would warrant a disregard of it altogether, especially such parts as might be due to error, there is an argument to be made there that insofar as there is any market value at all, a good many things are determined pretty much by an authoritative decision of them, whether by a Federal Judge or by a State Railroad Commission.

MR. SEARLS—There may be something in that argument, your Honor; the only suggestion I have to make is that so far as the State Railroad Commission goes the practice is determined, not by a single decision, but by a very general practice. I do not think that one decision should be held to establish such an influence on the market, coming from the State Railroad Commission; I think that a decision coming from Judge Farrington would be of very much greater weight in that respect. Judge Farrington's decision, however, was only one case. As affecting the general practice in the community and general market value, it seems to me there might readily be a distinction made there. And, moreover, the thought as to the effect of the values in the future which would emanate from the adoption by the commission of a particular line of practice would be more influential on the market I should think than a single decision of a Court as to a given case.

MR. McCUTCHEN—The practice of the Railroad Commission to which Mr. Lee testifies is not a uniform practice, anyway, is it, Mr. Searls?

MR. SEARLS—Practically so. I am going to read a number of additional cases in which they adopted original cost.

MR. McCUTCHEN—I have in mind particularly the Glendale case, decided by Mr. Eshleman. He determined the market value.

MR. SEARLS—That was one of the early cases and the amount involved was very small; in fact, it was so small that they could reach a determination by almost any method and not differ very much.

MR. McCUTCHEN—The flow was comparatively small—there is no question about that.

MR. GREENE—That was decided in 1913, wasn't it, Mr. Searls?

MR. SEARLS—I don't recall the date.

q. San Mateo Creek Rights All Accounted For.

The first objection that counsel makes is that the original cost method, based on Spring Valley history, does not value all the rights that the company has, and in order to doubly cinch his witness on this point he first drew a line down the center of the bay, cutting off the Alameda rights, so that no credit may be given for the sum of approximately \$800,000, for which the company received, at the time of purchase, practically no consideration; then he draws a line across the peninsula to the south of Lake Merced, so that no consideration can be given to the \$150,000 which the company expended at Lake Merced in the purchase of stock in a water company which did not have any water rights (8998). Having fortified himself with these preliminary precautions, he then calls Mr. Lee's attention to the fact that the company had a dam built at San Andreas some 10 or 12 years before the San Mateo Creek rights were purchased, and another dam at upper Crystal Springs, and had impounded some water there, and was diverting it to San Francisco, and he then inquires, "Where, in your original cost method, have you valued these rights?"

Well, if we exclude from consideration all Calaveras purchase excess, and the Merced purchase excess, perhaps we haven't valued them, or at least a portion of them, but let us see how much that portion is. Whether or not counsel's contention is sustainable depends upon whether the company was diverting any part of the

normal flow of these creeks prior to the construction of the lower Crystal Springs dam, and if so, how much. The defense advanced by the company itself in the Fifield case, to which I referred your Honor at the opening of this argument on water rights, would indicate that they were storing in San Andreas dam nothing but flood waters, and that a lower riparian owner could not stop them because he could not show any substantial damage.

With respect to the Mills-Easton tract, the company never has acquired the riparian rights as against that tract, and were negotiating to acquire them as late as 1911. I suppose some day they will purchase them, and when they do we shall be very glad to add the price they pay to the valuation of the plant for rate-fixing purposes, and to their water-rights account.

Mr. Herrmann says (8804), "No water rights were purchased by the company to secure the right to divert water from the San Mateo Creek at the first three points of diversion. The company's right to divert at these points to the extent of nine million gallons daily being acquired by long and continuous use." The three points to which the witness was referring were San Andreas dam, San Mateo dam No. 1, and upper Crystal Springs dam. It does not appear that the amount of water which was developed from upper Crystal Springs was ever separated from that which came from the San Mateo No. 1 and the San Andreas dams. It does appear, however, that the construction of the lower Crystal Springs dam enabled the company to divert four and a half million gallons additional. The remainder of the 19 millions of the peninsula source was made up from the Pilarcitos, which I shall discuss in a few moments. The question then is as to whether the company is entitled to a valuation on all of the nine million gallons that it diverted prior to the construction of the lower Crystal Springs dam, in addition to the valuation of the land and the structures necessary to divert it. Mr. Herrmann was unable to tell me, on cross-examination (8989) what proportion of that flow of San Mateo Creek was normal flow, and what proportion was flood water.

If Mr. Lee's hydrograph (Exhibit No. 187) may be taken as a typical showing of the flood characteristics of the coast streams,

as I think it may, it becomes obvious at once that a very large proportion of the volume of the stream must have been extraordinary flood water, to the diversion of which no land owner would have been in a position to object. I cite the Fifield case in support of this contention.

MR. McCUTCHEN—We got it then by appropriation, didn't we? We had the right to appropriate it because it was not part of the land and the riparian owners below could not object to our taking it.

MR. SEARLS—And you owned all the land and structures necessary to develop it, yes.

MR. McCUTCHEN—We didn't get the right to take it because it was part of the land and structures; we must have gotten it by right of appropriation, didn't we?

MR. SEARLS—You got it by reason of building your dam at San Andreas and storing and diverting that water, and when you did that you simply used the water crop from your land instead of using the hay crop.

MR. McCUTCHEN—But according to your argument we did not take it by virtue of the ownership of any land, did we?

MR. SEARLS—Yes, most certainly, by virtue of the ownership of the land and the building of the structures.

It appears, as I have stated, that the company acquired seven of the parcels lying in this district prior to 1875, one in 1876 and one in 1879. As the San Andreas was not built until 1868, and the purchase of most of these parcels was completed by 1874, it is very probable that the company had been negotiating for them long prior to that date, and paid, in their purchase price, the value of the lands, including the appurtenant riparian rights.

In figuring the reservoir values on Crystal Springs both Mr. Grunsky and Mr. Dillman have expanded the original costs, using different methods, of course, as a basis for determining present-day values. This would automatically take care of the value of appurtenant water rights. The remaining parcels of the San Mateo Water Works property were purchased in '83, and the terms of the deed are in evidence in this case as Exhibit No. 183. It appears that the

water rights of the San Mateo Water Works, to the extent of 300,000 gallons daily, were recognized by the Spring Valley Water Co., and delivery of that amount guaranteed; with the new location of the San Mateo Water Works reservoir on the Screen tank lot. All the remaining tracts of land which were purchased within the Crystal Springs watershed, extending below the lake level, were appraised by the defendant's real estate appraisers with the full consideration of their accessibility to the waters of Crystal Springs Lake, and with the assumption that the owners of those lands would have the right to take and use the waters found upon them or flowing past them for domestic purposes. This is true, also, of the tracts purchased in 1874, or thereabouts. I am unable to see, therefore, why an additional value should be allowed for water rights as against these tracts of land. They are included in the value of the tracts in fee in their present location, and with their present accessibility to water.

So far as the lands below the lower Crystal Springs dam are concerned, all the riparian rights to those lands, with the exception of the reservations made by the owners, were purchased subsequent to or prior to the time that the lower Crystal Springs dam was constructed. In no case were the purchases made according to the quantity of water stored, or upon any such basis. The owner simply conveyed whatever rights he had to use his share of the water in the creek for so much, insisting, in some cases, that the Spring Valley Company should deliver to him a certain amount of water for domestic use.

It is perfectly obvious, from the manner in which these rights were acquired, that the quantity of water had no bearing on the purchase price. All the company purchased from each owner was an estoppel.

I therefore conclude, first: that if the company was storing nine million gallons daily, prior to the construction of the lower Crystal Springs dam, that the proportion of extraordinary flood water in that storage must have been very large, particularly as to the San Andreas; secondly, that the valuation of the land lying between the three early storage dams, and the lower Crystal Springs,

has accounted for the value of the appurtenant riparian rights; thirdly, that, so far as the purchases made below lower Crystal Springs dam, the quantity of water which the company stored had nothing to do with the purchase price, and that the purchasers, in several cases, reserved approximately the amount of water which they were entitled to in the use of their riparian rights anyway; fourthly, that, owing to the development of residential districts in and around San Mateo the storage of the waters of San Mateo Creek constitutes a distinct betterment rather than a detriment to the property values, and that there is not a shadow of reason for assuming that the riparian rights to those lands would cost any more today than they did originally, if as much, even if the right to the entire normal flow of the stream were thus acquired.

r. Pilarcitos Prescriptive Rights Valued.

So far as the Pilarcitos is concerned, it is obvious that the company did acquire water rights there by prescriptive use. Counsel suggests that it may have been half the yield from that source, the total of which does not exceed five million gallons daily, including the Stone dam aqueduct supply. If I accept counsel's hypothesis, with the further assumption that 2.5 million gallons only would be the normal flow, some riparian owners below the Stone dam might have objected to the diversion of that amount. In view of the rough, steep character of the land in the Pilarcitos canyon, and of the fact that the company did acquire, by purchase, all the rights on the Pilarcitos cone, it seems perfectly fair to assume that Mr. Lee's allowance of 5% for omissions, contingencies, etc., would be entirely adequate to cover this Pilarcitos purchase, particularly in view of the fact that he has included in the cost of its Pilarcitos rights the sum of \$30,000 for one purchase as to which he was in doubt, and which I think counsel admits, referred to water rights on Locks Creek, and not on San Mateo Creek.

As an alternative your Honor might refer to Mr. Lee's total estimated cost of reproducing the riparian rights of the Spring Valley Company on Pilarcitos Creek, shown on page 9666 of the record as being \$96,638.00. Five per cent. of his total original cost

would amount to about \$92,000 (9618), which would more than cover the reasonable value of the rights acquired by prescription, particularly if the original costs that actually were found was taken into account.

s. Margin in Calaveras and Merced Purchase Price.

So far as the Alameda sources and Lake Merced are concerned there can be no question, and counsel does not question but that the million dollars, plus the original cost of riparian rights on Alameda Creek, and the \$150,000 paid for Lake Merced, represents the cost of all the rights they have got in that locality.

There isn't a question in my mind but that it more than represents it, and that there is a very generous margin left over of which no consideration was received by the company in those localities, and which would cover the value of any prescriptive rights which may have been acquired on the peninsula. It seems to me that this line of argument fairly and conclusively answers the first objection raised by counsel that we haven't valued all of their water rights when we use Mr. Lee's total figure of original cost.

t. Original Cost Does Indicate Value Today.

The second contention that counsel advances is that original cost doesn't represent value at all, and the value today should be very much in excess of the original cost. I would state, as a proposition affecting realty values in general, that there would be but little relation between the price paid for realty 50 years ago and the price which would have to be paid today. If, however, one might assume that no sales whatever of real estate in a given locality had taken place for 50 years, which would give any additional indication of the value of the tract under consideration, the original purchase price would have some influence in fixing the minimum price at which the owner of that land would be willing to sell. If he could not justify any price in excess of that he would at least be unwilling to take a price less than that.

Now, that is very much the condition in which we find the Spring Valley Company's water rights. Owing to the peculiar

manner in which they were acquired, and the uniqueness of their location and characteristics, it is practically impossible, and all the witnesses have testified to that effect, to find any sales in recent years having a direct bearing on their valuation. That being the case, why is it not proper to take their original cost as having a very substantial bearing on their value today, particularly in view of the fact, as Mr. Lee develops from his investigation, that the market value of these rights for alternative uses, and the probable cost of reproduction of the identical rights, would not exceed that original cost? Leaving out of consideration entirely questions of equity to the company, or fairness to the consumer, it seems to me that in this case there is a direct economical relation between the prices paid then and the value today. The company would certainly be unwilling to take less than that in an open sale. A purchaser could find but one reason to pay more, and that is that the revenue from the water supply business was yielding such a substantial profit as to make the rights very much more valuable. This latter assumption is contrary to every hypothesis upon which we should work in a rate-fixing case.

Second: It is admitted, as a matter of law, that in the year 1913 any purchase or sale of these water rights, by reason of their present ownership by a public utility, would have to be based upon and confirmed by the Railroad Commission of this State. It has been equally well established by the testimony of Mr. Lee, and of Mr. Ryland, President of the San Jose Water Co., that the Railroad Commission has made a general practice of valuing water rights for sale or rate-fixing purposes at original cost. This practice, of course, is not binding upon your Honor, in the sense of being the only authority which you must follow; but it does have a very distinct bearing upon the market price which a purchaser would be willing to pay. Knowledge of the practice of the commission in these matters would undoubtedly have a very wide influence upon the market value, and this is another factor which Mr. Lee has taken into consideration.

And, finally, the original cost furnishes the only absolutely definite yard-stick that we have. Opinions of hydraulic engineers should

have but little influence upon your Honor, unless these engineers support their opinions by some actual experience or reasoning. Neither of complainant's witnesses have been able to tell you of a single sale in their experience comparable with the Spring Valley water rights at prices which anywhere nearly approximate the figure that they have placed upon them. Neither of the witnesses of the Spring Valley Water Company have qualified as ever having bought or sold any water rights whatever in California. Neither of these witnesses have furnished your Honor with any logical justification for a price of \$100,000 per million gallons daily upon these water rights. The most that they have established is that water rights are valuable in California. This much we concede. Until they can define more accurately the process by which they tell us how valuable they are, they have not helped us any.

On the other hand, we have from Mr. Lee a carefully ascertained figure of original cost, not disputed by complainant's witnesses, which, I submit, has withstood in principle every attack which counsel has brought to bear upon it.

By reason of the margin of nearly \$900,000 in the Calaveras and Merced purchases, and the 5% for omissions and contingencies, which Mr. Lee uses, there is contained ample allowance for the valuation of whatever prescriptive rights were acquired, and whatever increment in valuation may have taken place. From the consumer's point of view we assume that the company actually spent this money in good faith, and that, although the price is far greater than any valuation for the highest alternative uses would indicate, it is but fair to allow it. I submit that Mr. Lee's figures on water rights should be adopted.

MR. GREENE—Mr. Searls, I want to correct a statement which undoubtedly was inadvertently made by you, where you stated that neither of the plaintiff's witnesses have had any experience in the purchase of water rights. The merest reading of Mr. Anderson's qualifications will show that he purchased a good many of them.

THE MASTER—He said in California.

MR. GREENE—The last time, your Honor, I don't think he qualified it to that extent.

THE MASTER—I so understood him.

MR. SEARLS—I was speaking of California.

u. Authorities.

The case of *Van Dyke vs. Geary*, 218 Fed., 111, refers briefly to a water right in Arizona; the decision is not very clear as to what was involved, and I will read just this paragraph from it showing something of the attitude of the Court at page 124:

“We are likewise of the opinion that the Commission properly disallowed the claim for \$20,000 for a water right. The affidavits submitted do not give a definite description of the alleged water right, and on the evidence submitted we are not able to determine whether in fact the complainants have made a legal appropriation of either underground or flood waters.”

The only purpose for which I read that is to show that complainants must establish what these rights are before they are entitled to value them. I think it does sustain that contention.

The cases of the Railroad Commission in which original cost was used as a basis for valuation I will not read, but simply cite to your Honor:

The San Jose Water case, which is contained in the little pamphlet of decisions I handed to your Honor;

The *Bakersfield Improvement Association vs. San Joaquin Light & Power Corporation*, 1916 C Public Utility Reports, 830.

The Etna Development Company case, reported in 1916 A Public Utilities Reports, 135.

In that case the Commission subtracted from the total purchase price of the railroad today real estate, buildings and machinery, the total value of the structures, and concluded that the balance represented the cost of the water rights.

In Judge Farrington's decision, in 192 Federal, the learned Judge makes this remark concerning the general question of water-right values:

“No question has been raised as to the propriety of including water rights among the properties to be valued, upon which

complainant is entitled to a return in the water rates. The only difference between the parties is as to the proper valuation.

"The valuations per million gallons of daily delivery fixed by the experts range from \$40,000 to \$150,000. The elevation of the peninsula reservoirs adds to the value of those water rights; while the fact that the entire output from Lake Merced and the Alameda system, constituting more than one-half of the entire water supply, must be pumped practically from the sea level, detracts materially from the value of those rights. It must also be remembered that such rights as complainant has to the sub-surface flow, and to the flood waters of Alameda Creek and San Mateo Creek, have been acquired, and their acquisition made possible, only by the purchase of high-priced lands, and the erection of costly structures, all of which receive an independent valuation. Obviously such a water right, when considered in connection with the cost of lands and structures, and the expense of filtering, pumping from artesian wells, and protecting with drainage systems, is of much less value than if the pure water could be taken from a living stream by means of a simple diverting dam, and delivered by gravity."

I omit any reference to the Judge's findings in the case, because I have not the record here upon which to discuss them.

This whole subject of water rights valuation is, of course, a difficult one. I have searched the authorities very fully to see if I could find some approved judicial basis for valuation, and I confess I have not been able to find anything which is comparable with the case here. The most that seems to have been definitely said is that a water right, separate and apart from the ownership of land, is something which should be valued. We concede that. Upon that statement, and upon the argument which I have advanced here, and the testimony adduced by Mr. Lee, I am content to rest this branch of the case.

VII. ORGANIZATION AND DEVELOPMENT EXPENSE AND GOING CONCERN.

1. General Considerations.

To Mr. Metcalf I believe should be accorded due credit for one of the most interesting and exhaustive discussions on the subject which I am now about to take up—the question of going concern, or, as he prefers to call it, development expense. The fact that I cannot agree with him in his conclusions does not in any way detract from the credit which is due him for a very thorough and able presentation of his case. No question appears to have been more vigorously disputed in rate-making cases during the past few years, and upon no question does there appear to be a greater conflict of authority than upon the issue as to whether an additional allowance should be made over and above the reproduction cost new, less depreciation of public utility property, to cover the value of a connected business. The question is further complicated by the distinction made by some tribunals between rate-making and purchase cases. In such tribunals there appears to be a feeling that the value which the public utility should be entitled to receive upon sale of its property might well be something different and greater than the base upon which its rates are to be determined.

Doubtless the whole situation has arisen by reason of the feeling in the minds of those charged with the decision of the questions that a plant with a connected business is of more value than a comparable plant without any connected business. If the case is to rest upon this bare comparison—that is, a plant with consumers as against a plant without consumers—there can be no doubt as to which would be the more marketable and more desirable, and consequently the more valuable. Fortunately or unfortunately, as the case may be, there are other conditions which must also be taken into account, and in the case of a monopoly certain factors which must be eliminated before the matter can be considered rationally. For example, if we were to assume the existence of an unregulated monopoly vested with legal authority to charge for the service it furnishes all that the traffic will bear, or all that potential competition would permit, the element of going concern might readily be

conceived as of a very substantial sum. It would probably represent the additional amount of cost of reproduction that the buyer of such a plant would be willing to pay rather than to erect a competing plant.

In the case of a water company situated as the Spring Valley Water Company is situated, even if there were no legal restraints, the naturally monopolistic position which it occupies would practically prohibit serious attempts at competition.

A similar capitalization might be made by comparison with the cost of delivery from the nearest available alternative source; but in that event what would be capitalized would be the monopolistic situation of the plant rather than the fact that it is a going concern, and the courts have pretty largely held that this monopolistic advantage is something which public policy dictates should not be capitalized against the public. In other words, the actual situation which confronts both the public utility investor and the consumer served is that of a regulated and not unrestricted monopoly. The monopoly is guaranteed against infringement of its constitutional rights, but on the other hand the consumer is guaranteed against exactions which would arise solely by virtue of the monopolistic position. These considerations, it seems to me, dispose of—for the purpose of this hearing, at least—the proposition that going concern value, if such exists, should be based on monopoly value.

2. Good Will Not to Be Valued.

In recent cases it has been pretty clearly set forth that good will, as the term is ordinarily used in business, has no place in the valuation of a regulated monopoly. Where there is opportunity for competition in business good will is an element of considerable import in the valuation of an established business. It has been defined as the tendency of customers to frequent a certain place of business. In the case of a water company like the one at bar no such tendency exists, because there is no other water company that its consumers could patronize. There is no basis for comparison. I think counsel will not contend that its business has a good will which should be valued.

3. Connected Business Value.

There remains still the question of connected business. I think these premises may be admitted: First, that the company undoubtedly expended time and money and passed through a period of inadequate returns before its water business was finally established on such a basis as it became, and be a paying proposition. This is a matter of history, and it has to do with historical conditions. I think it may also be premised that if all other circumstances are eliminated, a comparable plant built today and completed, and having no customers, would be less desirable and possibly less valuable than a plant built and connected up and doing business. The question then arises in the latter case, can you with justice to the consumer eliminate all other conditions except this to which I have just referred? Must we, in figuring reproduction cost of plant, assume that at the conclusion of the construction period time must still elapse and money still be expended before it can be put on a paying basis? It is at this point that I come to the dividing of the ways with Mr. Metcalf. In presenting the case I shall take Mr. Metcalf's way first and demonstrate, if I can, where I believe he has been led into error. Having done this, I shall then attempt to convince your Honor that a more reasonable hypothesis for us to make involves an additional assumption to that which Mr. Metcalf has made, and leads to very different results.

4. Metcalf's Methods.

Mr. Metcalf outlines two general lines of reasoning which have been adopted by valuator's during the last few years, and refers in addition to what he terms the rule of thumb method. And I may say right here that I do not believe your Honor can justify yourself in including an allowance for going concern, unless you can determine some reasonable basis on which to figure it. I cannot approve of the method finally adopted by the Master in the Denver case of letting his mind return to a certain sum more often than to any other sum, basing its inclusion in the valuation in that manner. If your Honor should adopt such a principle, there is no need to argue here. All I would have to do would be to select some mod-

erately low sum and repeat it a sufficient number of times, until I had hypnotized your Honor's mind to return to it. Considerations of modesty in the matter of my hypnotic powers urge me to desist from the attempt.

a. Rule of Thumb Methods.

The method of assuming the percentage of the value of the property or based on the gross annual revenue means absolutely nothing until the percentage is determined. It would be just as logical to average all the various percentages that have ever been allowed in the country under thousands of conditions of market and financial history, and say that the average represented something that was applicable here. I think it requires no argument to demonstrate that such an average would mean nothing. Mr. Metcalf has supplied as an addenda to his Exhibit No. 198 a table purporting to show "Excess Awards Over Depreciated Reproduction Cost in Amount and Per Cent. Covering Development Expense or Going Value, Intangible Values, etc., so far as recognized in the award." Since the trial of the case I have examined very closely the citations given in this table, and out of the sixty cases which he cites, I find no less than twenty where the excess of award over depreciated reproduction cost either did not include going concern element at all, or was specified to have included working capital, franchise, going concern and other elements without segregation, so as not to enable an intelligent determination of the percentage to be allowed.

I have prepared here a table which, taken in connection with Mr. Metcalf's Exhibit, to which I have just referred, will enable your Honor or counsel to check the figures which I am using. In order to obviate the necessity of going through each of these 60 cases which he cited, I simply number them from one to sixty on the page, and in this little summary which I hand you here I have classified these decisions thus numbered under four headings. First, decisions that were used correctly; second, decisions which I was unable to check for lack of access to the records anywhere in San Francisco; third, decisions where going value was not allowed; and

fourth, decisions which did not specify the amount for going value, or where Metcalf's figures contained amounts other than going value, or where ruling was reversed.

THE MASTER—You mean where the ruling was reversed on appeal?

MR. SEARLS—Yes.

TABLE 26.

CLASSIFICATION OF DECISIONS STATED BY METCALF
ON GOING VALUE INTO FOUR DIVISIONS

Page 15, Exhibit No. 198 (Spring Valley Water Company.)

1. Decisions That Were Used Correctly:	
Purchase	
Nos. 1, 2, 4, 7, 9 & 11.....	= 6
Rates	
Nos. 6, 10, 27, 35 & 54.....	= 5
2. Decisions With No Reference Available:	
Nos. 3, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 36, 39, 43, 48, 49,	
50, 51, 52, 53, 55, 57 & 60.....	= 24
3. Decisions Where Going Value Was not Allowed:	
Nos. 38, 40, 46 & 47.....	= 4
4. Decisions Which Did Not Specify the Amount for Going Value, or Where Metcalf's Figures Contained Amounts Other Than Going Value, or Where Ruling Was Reversed:	
Nos. 5, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 33, 34, 37, 41, 42, 44,	
45, 56, 58 & 59.....	= 21
TOTAL.....	60

In 24 cases it was impossible to check from any books available in San Francisco the data which is set forth in this table, and the results obtained from examination of the 20 cases to which I have just referred indicates that a careful scrutiny is necessary before these results can be accepted. In six cases going concern was allowed, but they were all purchase cases. In six rate cases going concern was allowed, but in two of them the amount was much smaller than that specified in Mr. Metcalf's table.

As a conclusion from this I submit that no particular weight can be given to Mr. Metcalf's rule of thumb results so far as he determines them from this list of authorities.

THE MASTER—Did he determine his rule of thumb formula by reference to a number of citations?

MR. SEARLS—He stated, your Honor, that these citations indicated that the courts and commissions of the country had been

in the habit of allowing an average percentage of something like 10%, I think it was, of the value of the property to cover going concern and intangibles.

MR. GREENE—I think, Mr. Searls, that is hardly fair to Mr. Metcalf. He had certain instances which he said he knew personally about, and from which he gathered the percentage which he used, and added this compendium of tables here, some of which he had at the time no information about excepting hearsay. You examined him with regard to these, and the views that you brought out here were inferentially suggested in the examination. He did not tie to that list, as I recall, in any way a measure of the value which applied when it came to his actual determination.

MR. SEARLS—At any rate, that is the only data that he has given us as a basis for checking his opinion, I think you will concede.

MR. GREENE—I think all the data that he had in the way of decisions is included there. I think you will remember he tried to put everything into that table, but there are some of those which he did not know about at first hand, and as to those he stated when he was under examination.

THE MASTER—In other words, I inferred before that was the rule of thumb method, but without any understanding whether there was any principle back of the rule of thumb method, nor did I ever understand that the rule of thumb method was deduced from a compendium of cases. If I had any thought about it at all when I heard that there was such a rule of thumb method sometimes used, it was that engineers had from various other studies deduced a formula. I do not think that Mr. Metcalf intended to say that the rule of thumb was deduced from this compendium of cases. In the other case that I tried I had a similar list of cases presented to me, perhaps not so many as this, but which checked up something of that sort.

MR. GREENE—Your Honor asked Mr. Metcalf that question in almost the language which you have just used, and he made his answer in almost the language that you have just stated, that it came from his own experience in other cases where he had put

values on that element which had been allowed, or from engineers whose practice he had been familiar with and who had done the same thing.

MR. SEARLS—All I can say as to that is, if Mr. Metcalf states simply as an opinion based on his qualifications going concern is 10% or whatever other percentage he considers, then I do not think that that statement should be given any more weight than the statement of anybody who has heard a large number of people express that idea. There is no foundation for the idea or no reasoning on which it can be based. I certainly object very seriously to its consideration here. If his idea has merit it must be because there is some reason for it, and the only reasoning which Mr. Metcalf has furnished with that idea is this list of cases which he includes. My examinations tended to show that they did not sustain his contention. If his contention is based on other cases than these which he has enumerated, or other opinions, he has not told us about them specifically, and I do not know what they are. I imagine that any valuation engineer of the experience that Mr. Metcalf has had would get into the habit of adopting certain percentages for use in cases of that sort that would probably appear to him to be reasonable.

THE MASTER—What I had in mind was this, that in the collateral question of depreciation allowance Mr. Hazen adopted a certain percentage of gross yearly income, and I think Mr. Greene told me that he deduced that from this statistical study of other water works. Now, conceivably some such rule as this 10 per cent. rule might be a short cut to similar studies, a study, for example, like Mr. Metcalf has made here in detail; that is about all there is to it. Of course, taking the Omaha case, the valuation there without going concern was \$2,700,000. The Court of Appeals raised it to \$3,000,000, in round numbers; that was about 8 per cent. The raise to \$3,000,000 was expressed as being from many conferences and computations and due consideration. The fact remains that they considered something of that sort was there and possibly brought it up to a round figure. You cannot very well deduce a rule from that, so that these rule of thumb methods do not go so very far,

except so far as they may have sufficient currency as to be commonly acted upon.

MR. SEARLS—At any rate, your Honor, they are hardly matters that can be argued as principles.

THE MASTER—No.

MR. SEARLS—All I have attempted to show here are the cases to which the witness specifically referred without comparing them, which would enable an intelligent determination of a percentage which was actually allowed in these cases for going concern separate from other items.

b. Original Deficit Method.

Abandoning these rule of thumb methods, Mr. Metcalf then attempts to go down his path of reasoning by one of two routes. The first involves development expense under original conditions, which he refers to as the Wisconsin Railroad Commission method. This method is applied in the following way: To the original cost of the property upon its completion at the end of the year there is added the cost of the new construction built during the year, with overhead and other incidental costs included; the operating expenses, including repairs and taxes; a reasonable depreciation allowance and an allowance for fair rate of return, including interest and profit. From the sum thus made up is subtracted the actual gross revenue earned during the year, leaving what could be called the total capital sum at the end of the year. Annually thereafter a similar course is pursued, there being added each year to the capital sum the difference between the actual revenue earned and the operating expenses, plus repairs, taxes, depreciation allowance and fair return upon the previous capital sum,—the sum of the deficits in earnings below the assumed fair rate of return thus constituting the development cost, any excess earnings above the estimated fair rate of return being deducted and serving to decrease the development cost to date. He has applied this method on Tables 9 and 9-A of his Exhibit 198, showing the accumulation of nearly \$6,000,000 development expense during the 50 years' life of the plant if an annual appreciation of 2 per cent. on land value be considered as a part of the

rating base or a cumulative excess over early deficiencies of \$3,700,000, if land be included in the investment at its original cost. In the latter case there would be obviously no basis for the allowance of going concern, as the company's earnings to date show a surplus of \$3,000,000 over deficiency actually incurred during its history on its actual investment.

If, however, we follow the method Mr. Metcalf outlines in Table 9, a closer examination is necessary. In his cross-examination (10,525 et seq.) Mr. Metcalf agrees with me in the conclusion that up to the year 1900 the return which the Spring Valley Water Company had earned on the value of its property, including value of structures and value of lands, was probably at least equivalent to the fair cost of money since the beginning of the plant's history.

(10,527) In other words, about the year 1900 there would be no accrued deficit even if Mr. Metcalf's average appreciation of land values be allowed and something approaching the value of the structures so far as it may be said to be determined by Judge Farrington in 1903. It should be borne in mind also that Mr. Metcalf's table involves the allowance of interest during construction on both lands and structures, and the interest on the deficits of the early years is compounded at his assumed fair rate of return. Of course, if we turn to Mr. Dockweiler's Exhibit No. 185, which does not involve the compounding feature I referred to, the early deficits were wiped off by 1880. Personally, I see no reason for compounding interest on the deficits. I think if the investor obtains straight interest at the assumed fair rate of return that he is getting all that he deserves. But let us assume for the moment that Mr. Metcalf's method is correct and that the early deficits on the plant have been wiped off by the year 1900 or thereabouts. There having been no very substantial additions to the structures of the company since the year 1900 or thereabouts, I suggested to Mr. Metcalf (10,531) that the deficit which he finds on his Table 9 is probably due, not to any development expense as that term might properly be used, but either to the reduction of rates which took place in 1902 or to the failure of the rates to earn his assumed fair rate of return on the ap-

parently appreciating realty value. In this the witness practically agrees with me. He says (page 10,532):

"I think that is true, in general, Mr. Searls; this method has to do essentially with deficits in fair rate of return, and not essentially with the cost of advertising and other things of that sort to build up a business. The one important element or the one central idea in the method is that the property owner should be entitled to collect year by year a certain fair rate of return upon investment, and failing in that earning, then the deficits created by the failure must be added into the capital sum until it is wiped out subsequently by excessive earnings."

On page 10,533, after I had defined development charges as limited to the actual cost of developing the business and the inadequate returns of the early years, he says:

"Well, if you can separate the two ideas in that way, I think it probably is true that the development expense as so defined and limited has been satisfied, but there still would remain at the present time the deficit created by the failure to earn a fair return on the appreciation in value of the real estate and resulting from the reduction of the rates to a point where you were not getting a fair return on the fair value of the property."

Of course, Mr. Metcalf later discards this entire theory as being illogical. My criticism would be that the witness has carried the tables altogether too far. The application of the theory should be limited to years in which the company can be said to be developing its business. Prior to the year 1900, for instance, there was a fairly constant stream of capital flowing into new construction. One source after another was brought into use, and deficits resulting from inadequacy of demand to meet the available supply might well be expected to accrue; in fact, they did accrue during the first eight or ten years following the consolidation of 1865. But the table shows that they were satisfied by the excess earnings up to the year 1902. After that they dropped down, but this record shows that there were no substantial additions to construction made since 1902, and certainly that no new and important units came into

service from which a more than adequate supply of water to meet the demand was derived. How, then, can it be said that this deficit—if it exists—is due to development expense or inadequate returns resulting from building up the business, or, in fact, any cost which has to do with going concern? The rapid increase in realty value in the later years certainly meant nothing to the consumer. It added no water to the domestic supply of San Francisco, nor did it entail any additional outlay by the Spring Valley Water Company. It was simply unearned increment accruing entirely to their benefit. It has absolutely nothing to do with the development of their business. The only basis on which it could be adopted for rate-making purpose of adding an intangible element would be on the basis of adhering without discrimination to the Wisconsin rule of capitalizing deficits. If your Honor will read the decisions of the Wisconsin Railroad Commission to which Mr. Metcalf has referred—I shall cite certain specific ones to you later in connection with the discussion of the law of this branch of the case—you will find that the Wisconsin Commission itself did not follow that rule without very careful reference to its applicability to the particular case before it. Any other course of procedure would produce absurd results. It would amount to placing a premium upon inefficiency, waste and mismanagement, overpaying officers, and every other undesirable means of expending public utility earnings. It is only the deficit resulting inevitably from the inability of the plant to earn a return at fair rates due to the cost of developing the business that has any real place even in the Wisconsin theory, and if that limitation be placed upon its application Mr. Metcalf's own tables show that the deficits chargeable to development have long ago been satisfied, and that there is nothing to capitalize against the rate-payers during the years in controversy. If we are to consider annual sustained development losses I see no reason for applying an increment to land valuation in determining the basis of earnings. It has been suggested by your Honor, and I think in the article in the *Journal of Political Economy* to which you referred us at one time, that perhaps this development of annual deficit as a basis for computing going-concern value, is more applicable to the original investment

theory than the reproduction cost theory. This does not, however, appear clear to me. These accrued deficits, while they should undoubtedly bear interest until they are wiped out, are by no means elements which should necessarily increase in amount as the years go by. Assume that the plant originally incurred a deficit of a million dollars. There is to my mind little justification in saying that sum would be two million today, merely because the real estate, for instance, may have doubled in value since the original investment was made. It is one of the things which cannot be accurately figured in a reproduction basis any more than can the values of the lands beneath the reservoir areas. We have to take original cost, so to speak, and determine whether that should be expanded. I am unable to see why in the hypothetical case I have mentioned of a million dollar deficit being incurred 50 years ago, that any assumption of increase in that amount should be made with reference to the plant at the present day. If there is no logical reason for assuming such an increase, why should any more than the original deficit be added even on a reproduction cost basis?

THE MASTER—My suggestion did not involve assuming an increase, but it might involve assuming a decrease.

MR. SEARLS—I understood the application of that article was, or, rather, that the suggestion was that because you are using historical facts that that would not apply to the reproduction theory, which is necessarily based upon present conditions. My suggestion is that these historical facts might be a very good indication of present conditions.

THE MASTER—The only thought on that article, which I now do not remember and did not necessarily agree with, was the suggestion made that in the attempt to reason clearly an actual original deficit was more properly an element of consideration in connection with original investment, and that when you come to consider reproduction cost you must assimilate your theory of going concern to those things. I think that particular author thought that in connection with the reproduction cost there was no going concern value, but I do not remember now. The suggestion you

make as to the increase in going concern value, due to that remark does not necessarily follow.

MR. SEARLS—If this last contention be correct, then it is clear that no allowance should be made in the case of the Spring Valley Water Company if the deficit due to development expenses were wiped off long before the end of the last century. Even on Mr. Metcalf's application of this theory in Table 9 there seems to be no justification whatever for the inclusion of the deficits resulting since 1902, because the record shows clearly that they cannot have resulted from any development expenses. I know of no decisions of any court in the land which says that the rate payers today must capitalize and pay return upon deficits of the last ten years which resulted from earnings which were inadequate to pay return upon increments in value and were not insufficient to pay an adequate return upon the investment made prior to those years without such increments.

The most that has ever been said along the lines that I have outlined is that the rates should pay a return for the value as of the given year including the capitalized development costs. That is capitalized development costs which were not already compensated.

Even if, as counsel contends, the supervisors were unjust in reducing the rates during the years from 1900 to 1907, there is no rule which says that the rate payers since that date must shoulder the sins of their fathers. The company has enjoined the rates which have been fixed by the supervisors ever since 1902. If they did not obtain in their preliminary restraining order or temporary injunction permission to collect sufficiently large rates to give them adequately large returns, that is the fault of either the showing made by the company or of the court that awarded the injunction, not the city's rate payers. It is in this record that Judge Farrington decided the cases for the years 1903, 1904 and 1905 in the company's favor, and that the ordinance for the year 1906 was ignored by the company and by the Schmitz administration of the city alike. If there was a deficiency during those years, it was not the fault of the city, the city's ordinance was enjoined. So far as the city was concerned, the company was entitled to collect any amount for which

it could get the court's permission. The city cannot be charged with a limitation which may have been placed by the federal courts in granting its preliminary injunction. All the considerations to which I have been referring convince me that if the capitalization of the early losses is a proper basis for measuring going concern, that the proper application of this method to the case at bar is no justification for an additional allowance over reproduction value, whether or not the assumption be made that the earnings must be reckoned on the original investment, or whether they must be reckoned on the value of the plant for each year.

This case is a case between the Spring Valley Water Company and the City and County of San Francisco. The same stockholders prior to the reorganization built these works. If equity has been done to this company, then, in effect, equity has been done to the parties in litigation, and your Honor need not concern yourself whether, in a theoretical reproduction these expenses might be incurred and might be added to the works. If they were incurred, they have been compensated for. It seems to me that is as far as it is necessary to go in this examination.

Friday, September 1, 1916.

c. Authorities Holding Original Deficit Method Proper.

MR. SEARLS—In connection with this discussion of going concern based on the capitalization of early losses actually incurred, if any, I wish to refer your Honor briefly to the decision of the Court of Appeals of the State of New York in the case of *People ex rel Kings Co. L. Co. vs. Wilcox*, reported in 210 N. Y., 479. I presume your Honor is familiar with that decision. I just wish to read a very short paragraph from it which passes on this question. The court says at page 489:

"The first question, therefore, to determine on this branch of the case was whether the company had already received a fair return on its investment; if it had received such return from the start, or if in later years it had received more than a fair return, the public would already have borne the expense of establishing the business in whole or in part, and to that extent

the question of going value or the purpose of fixing a present rate would be eliminated; for it must constantly be kept in mind in dealing with this problem that the company is entitled to a fair return and no more. If it has already had it, that is the end of the matter. If it did not receive a fair return in the early years owing to the establishment of the business, a subsequent rate must allow for that loss, or it will be confiscatory."

Now, I submit that the evidence in this case fully complies with the provision of that decision and I think that the opinion of the Court of Appeals of the State of New York is entitled to a great deal of weight as a judicial precedent.

Later on in the decision the Court discusses the methods by which going value should be appraised and says at page 493:

"Obviously, the most satisfactory method is to show the actual experience of the company, the original investment, its earnings from the start, the time actually required and expenses incurred in building up the business, all expenditures not reflected by the present condition of the physical property, the extent to which bad management or other causes prevented or depleted earnings, and any other facts bearing on the question, keeping in mind that the ultimate fact to be determined is not the amount of the expenditures, but the deficiency in the fair return to the investors due to the causes under consideration."

That rule to my mind is the fairest one to apply to public utilities. If they have actually incurred development losses there that have not been compensated at the date of the inquiry then I believe that it is only fair that those losses should be compensated by capitalization or by a greater rate, but I do not think that that showing is made in this case.

The decision of the Supreme Court of this State in the *Contra Costa* case, reported in 159 Cal., 323, is to the effect that unless the public utility makes a showing and proof of these early losses that they will not be included.

THE COURT—Read the citation.

MR. SEARS—It says:

"It is unnecessary to say that the burden was on the plaintiff

to furnish data showing that these elements had a distinct, independent productive value before any such value could be included."

Then it goes on to say:

"In what we have said, we do not desire to be understood as deciding that in the matter of fixing water rates anything at all should be added to the value on account of the element of going concern."

THE MASTER—Of course that view won't hold water. You cannot take any element of an organic whole and find a distinct independent productive value. You could not take even so essential an element as a mile of main pipe and assign a productive value to that. That point of view is not going to lead anywhere. If there is any such thing as a going concern value it is there in the nature of an element of value that inheres in every item and not as a separate and distinct thing like a dam or pipe.

MR. SEARLS—I think that is along the line of reasoning that Judge Savage used in the Maine cases, is it not,—that going concern is a characteristic of the structures—that is, he says that it is inseparable from the structures. That was his theory in that case.

THE MASTER—Yes, that is true, but still that does not answer the suggestion whether or not the whole body of units should be given an additional value which is separately stated as going concern, but which is inherent in each of them. I think I have used the language in that respect of the Cedar Rapids case, one of these cases in the Supreme Court where the lower court had found a distinct value and the Supreme Court characterized it as an element of value separately stated which is inherent in every element. That must be so of course. It is nothing that you can look at or see or weigh or find separately. If it is to be allowed at all it is because it is an element of value due to the fact that you have got a business in successful operation as an organic whole.

MR. SEARLS—The point I wish to make right here, your Honor, was that after all the object of this case is not so much to determine the value of the Spring Valley Water Company

structures as it is to see that exact justice has been done between the Spring Valley Water Company and its rate-payers; and if it appears from all the evidence that the Spring Valley Water Company has in fact been compensated for these early losses which were actually incurred—in other words, they have been written off and paid back to them—then there is no basis for charging the rate-payer of today a return on a hypothetical increment of value resulting from the application of some comparative plant method or other theoretical method to the reproduction cost.

THE MASTER—Mind you, Mr. Searls, in criticising the Supreme Court of California in the Contra Costa case I am not criticising the view which they took of the subject matter as to whether a separate allowance might be allowed for going concern value, but for the reasons assigned to it.

MR. SEARLS—I do not think it is altogether clear; it is the only decision from this State that I know covers the topic at all.

MR. GREENE—Mr. Searls, if it did not appear as you think it does from your argument, that the early losses had been in fact compensated for, is it your notion that an allowance on account of this element should be made?

MR. SEARLS—Early losses resulting from development expenses?

MR. GREENE—Yes.

MR. SEARLS—I would concede that an allowance should be made for the early losses actually incurred in the development of the company if they had not already been compensated.

MR. GREENE—Is that on the theory of doing equity to the company or because of the presence of an element of value in the property itself?

MR. SEARLS—Both; there is the presence of an element of value in the property itself. As I have said I can see no reason why that should be figured on any different basis than the original amount that was outlaid for it, or was laid out in acquiring it. If we have paid back that original amount then I see no reason for charging the consumer of today with the return as a capitalized increment. It would be the same position as if with an excessive

depreciation allowance in past years we had paid back to the company its entire investment in plant in addition to the amount that they had put into renewals, or rather had put into replacements. In that case I think the court might well say, well, the company has been paid back the investment, why allow any annual depreciation allowance except on the new plant.

THE MASTER—What bothers me, when I stop to consider past history between parties, as you suggest, is the attitude of the Supreme Court in the Knoxville case which briefly is, as generally understood, that bygones must be bygones. It appeals to one, of course, but yet if you conclude that no depreciation has been in fact paid for, the question arises in your mind whether you should not conclude such an element as development expense has been paid up.

MR. SEARLS—In reading the Knoxville case, I think it is only fair to say that I have come to practically the same conclusion that counsel has, that the court was dealing with a hitherto unregulated public utility, and that that statement as applied to that particular utility could not in fairness be applied to a utility which had been subject to regulation. I have not made that point in my discussion of depreciation because it seemed to me that it was well taken by the other side; and while the evidence in this case is to my mind somewhat in doubt or somewhat uncertain as to how much the company may have written off in the way of accrued depreciation as an operation charge in past years, if it could be ascertained that they have not written it off, possibly that fact should be taken into consideration.

With reference to the rulings of the Wisconsin decision, I think if your Honor will read the decisions of that commission which are referred to in Mr. Whitten's work you will find there is more than one of them in which the commissioner said that the rule must be applied with reason. That is the mere fact that losses have occurred in the past is not necessarily a criterion for charging them all up as capitalized increment. You have got to know how they occurred.

THE MASTER—Yes. Of course if the parties had built a plant where it never ought to have been built they could not expect

to make more valuable on that account. I suppose that is what they say, isn't it?

MR. SEARLS—Yes.

THE MASTER—Or if they built it extravagantly.

MR. GREENE—I think they say that the plant has got to be in general and within general limits a normal plant.

THE MASTER—That distinction is a key to much of the law on the subject. I really think that is a criticism you have got to make of Judge Farrington's statement where he says that the more the plant loses the more valuable it becomes, or words to that effect. Well, of course, that seems persuasive on the first statement. After all the view itself concedes, Mr. Searls, that if the Spring Valley Water Company in a great city like this built its plant at a considerable loss, and maybe at a great amount of loss, it must follow that that must be allowed as part of the expense of getting the water here; whereas if instead of doing that they have chosen to devote the property they have to the use of a very much smaller town they could not possibly ever make it up. I suppose for example if anybody was so foolish as to establish a fine water system, a long aqueduct, to serve some mushroom desert town, the scene of temporary mining activity, they could not expect to charge rates to make up for the losses they might have had.

MR. SEARLS—With these comments I shall pass to a discussion of the Comparative Plant Method upon which Mr. Metcalf relies principally in reaching his conclusions as to the value of the going concern element.

d. Comparative Plant Method.

Having disposed of the original deficit method of computing going concern to my own satisfaction, at least,—I may remark that Mr. Metcalf disposes of it in a different manner and does not approve it anyway—I shall now follow him down his second path of reasoning by which he attains the result which he sets forth. This method may be termed the comparative plant method.

MR. SEARLS—Under this method Mr. Metcalf assumes as a starting point that he has reproduced as of December 31, 1913, his

plant, and that each of the elements of his plant as it is completed stands ready for use without consumers. I wish to mark particularly this preliminary assumption. His next assumption is as to the length of time it would take to develop the business and the revenue which the company now has.

MR. GREENE—If you will pardon an interruption, that is not Mr. Metcalf's assumption. He assumes as his units come into use they will be availed of.

MR. SEARLS—Is there any other construction you can put on the sentence I gave you, that each of the elements as it is completed stands ready for use without consumers?

MR. GREENE—I took a different construction: that there were to be no consumers when the unit was completed. If you do not mean that I misunderstood you.

MR. SEARLS—You would not have that particular unit according to Mr. Metcalf's own theory—

MR. McCUTCHEN—In other words, that unit would have to be completed before it could have customers attached to it.

MR. SEARLS—The company would have to develop the business after it was completed.

His next assumption is as to the length of time it would take to develop the business and the revenue which the company now has. In making this second assumption Mr. Metcalf does not concern himself with conditions as they are or as they were in San Francisco in 1913. He refers to a number of what he regards as comparable cases where a city has built additions to its water supply, or, as in the case of New Orleans, has built an entirely new water system, and he takes the period of time which it took to place these investments on a remunerative basis, and applies the figure derived from these various periods of time to the San Francisco situation, using six years, I believe, as his figure.

Upon cross-examination (pages 10,538-10,543) he discusses the applicability of these assumptions to San Francisco. First he says that he assumes there would be some kind of a water supply in San Francisco prior to the date of completing the Spring Valley plant, probably to be derived from wells. This involves a very

high degree of speculation and the assumption of something which does not exist and never did exist. Mr. Metcalf states expressly (page 10,538) that it would have been very difficult to supply consumers in San Francisco prior to 1913 from private wells or cisterns. I will go further than that and say that so far as anything in this record goes it would have been physically impossible to supply them from any such sources.

If the complainants have shown that the consumers in San Francisco to the number that were had at these dates could be supplied from public wells, or wells driven within the city, I would be interested to find out where that showing is made.

There is no testimony that the 40,000,000 odd gallons which is the very minimum supply with which the city of San Francisco can get along could be derived in 1913 from wells or cisterns.

If your Honor will consult the municipal reports as to the result of our investigation in the well problem in this city, you will be convinced that it would have been impossible.

I submit that the only assumption that Mr. Metcalf could make that would bear even the weight of possibility would be the existence of a healthy competing supply, in all probability under municipal ownership. When I made that assumption I asked him a question (page 10,541 of the record)—did he not think it was a logical assumption to make that if the Spring Valley supply were not here, that the city would long ago have obtained its own supply. He stated that it was a logical assumption. If that were the case, and the city of San Francisco or some other large corporation were bringing a larger water supply from the Sierra Mountains or the Sacramento River, the company could not in a hundred years have built up the business it now has. In other words, assumptions of a logical premise makes the estimate of the period of time necessary for developing the business absolutely impossible—and that gets us back to the comments which Mr. Eshelman made upon the reproduction method when carried to its logical extreme and which I read to your Honor at the beginning of the argument.

The only assumption which to my mind would be consistent with the adoption of the reproduction cost theory is the assumption

of conditions just as they were—assumptions of the existence of the city, the water consumers and no other supply than the Spring Valley, and if you want to add to that, you can say the few wells we have driven around town here, but the water derived from them has been insignificant.

It is admitted that the labor of connecting the services has all been accounted for in the reproduction valuation of the structures. The distributing mains are laid and paid for, the houses are there, the services are connected—nothing remains except to turn on the water. Working capital takes care of the amounts that would be necessary as an outlay until the first month's rentals are all in. I fail to find any justification whatever for assuming a cost of developing the business, which, on every hypothesis consistent with reproduction value, must exist already. The people must have water. There is no other system; their pipes are connected with Spring Valley. What possible ground is there for the assumption of anything but the most nominal development cost? I will consider the expense of turning on the corporation cocks if some witness for the plaintiff will tell me what that expense is, although it is probably an operation charge. I have yet to find any decision of any tribunal which upheld the comparative plant method upon the basis of assumptions which would have to be made in this case. There may be cases where it would be applicable. I do not know. I feel sure that there would be cases where the original deficit method would be applicable, but I have shown that this case is not one of them. I therefore conclude that none of the paths of reasoning which Mr. Metcalf has used lead us anywhere, and that as a matter of logic and in accordance with the law of evidence, your Honor must reject this testimony as not being at all convincing.

5. Going Concern Element Accounted For by Defendants.

But I feel that there may still lurk in your Honor's mind the thought that, notwithstanding the failure of any of these methods to allow for it, there may be a difference between the value of a plant with customers and the value of a plant without customers, and I wish to dissipate that feeling if I can. I am aware that the

courts have said in a few cases that reproduction value in itself is not the value of a going concern, until a separate allowance for going concern has been added. The more I think of this question, the more strongly it appears to me that the tribunals who have made this ruling have ignored one very essential element of reproduction value, and this thought appears to me to apply with more force to the valuation of the Spring Valley Water Company than to any other corporation of which I have knowledge. Judge Savage expressed it in part in his decision in the Maine cases, although he may not have had exactly the same thought in mind. It is simply this—that in reproducing a plant like the Spring Valley Water Company at this stage of its career, if you give it reproduction value you have included all the value which has been reflected into this concern through the development of its business. The Spring Valley Water Works' founders, making an investment in the years when San Francisco was in its infancy as it were, acquired their vast real estate holdings at the then existing prices, built their structures at the then existing labor and material prices, and by being first in the field obtained a monopoly to the business of supplying the city with water. Water being one of the first essentials of life, was instrumental in a large measure in aiding the development of the city, attracting business and commerce and residents. With the growth of the city resulting in part from this investment of the Water Company, real estate values increased and industries developed, wages advanced, and all the various steps in the evolution of a metropolis took place. In all of this the company played its part, and as a result of all of it, it received its reward. Growth of business, increase of population, and consequent increase in the necessities of the municipal government for fire protection brought not only increase in business and its attendant plant, but also very large increments in the realty value in San Francisco and the adjoining territory. All of this increment accrued to the company solely, and only because it was a going concern. It would not have accrued to the company had it not been a going concern. Without the water supply which the company gave the city, the city could not have existed. Realty value could not have grown. Business could

not have been developed. These things are so inter-dependent and inter-related that to separate the going concern from the rest of the value is practically impossible. As Judge Savage said, it is but a characteristic of the structures and the lands and the rights and the business which the company has. Without it the company's plant would have little value. If we assume the absence of that business, which we must in order to calculate development expense on the comparative plant method, we must also to be consistent assume the absence of the conditions which that business made possible. If you assume that absence you must reproduce your plant on radically different lines in order to be consistent. You must reproduce your realty on the basis of the value that it would have if the land which San Francisco now occupies were shorn of its water supply. You must reproduce your structures on the basis of the wages and the material prices that would exist if there were no healthy, growing city, with its unionized labor forces and its profitable industries. When you make this assumption I am satisfied that your reproduction valuation would fall so far below the cost which any witness in this case has estimated that counsel would say: "Give us rather the reproduction value of to-day, and do not try to separate out the going concern value." The going concern value is there, but it is in the value of the real estate and the value of the company's plant as we have figured. They have been valued as structures and lands in use and not as structures to which no use attaches.

That does not necessarily mean the difference between a scrap value and the value as property in use; it means that the full reproduction value of the structures, and the value of the lands has this very element embodied in the figures which are reached. The plant might conceivably be worth considerable more than scrap value, especially the real estate end of it, if there were the possibility of building up a plant on an open moor, as counsel describes the city prior to the Treaty of Queretaro; so it could not be scrap value if it were reproduced and ready for use, but it would not have anything like the value that has been given here. Going concern as a value, therefore, is not an intangible sum floating in the air, a thing

to be measured separately from these tangible elements which enable the company to do its business, but is, itself, a part and parcel of the valuation of these elements.

Such is my argument on the theory of going concern. I believe it is consistent with the theory of "fair" and "reasonable" value, and what is more important, that it is equitable to the company and to the consumer alike.

The only witness for the defendants who discussed this question was Mr. Dillman, and upon reading his direct testimony I think you will find it approximately follows the line of reasoning which I have just outlined.

On cross-examination Mr. McCutchen tried out some theories on him and persuaded Mr. Dillman to admit that going concern might be measured by the capitalized increment of the actual net earnings over and above an assumed fair rate of return. This might be all right for a privately connected business, but would result in all sorts of absurdities if applied to the public utility regulation. Every time the earnings from the rates exceeded the assumed fair rate of interest, the company would get a capitalized increment to its valuation, which would bring the interest back to the assumed fair rate of return. Every time the rate of return fell below the assumed fair rate of interest, there would be a decrement, which would bring the total valuation down to the point where the rates would yield the fair rate of return. I never heard Mr. Dillman express that theory before he took the stand for cross-examination. I rather think he made it up to accommodate counsel, who seemed rather anxious to get some basis on which going concern could be figured. It is perfectly harmless to us, because if applied logically your Honor would have to assume that the rates concerned the fair rate of return and would always come back to that.

6. Citations.

I now wish to refer to a few of the authorities which counsel discussed, and give my views as to the interpretation which should be placed upon them, particularly upon the last decision of the United States Supreme Court in the *Des Moines Gas Case*. I think

I shall take that up first. I will premise it by the statement that I do not conceive, as the master in the Denver rate case seems to, and as Mr. Floy seems to in his work on valuation, that the court was laboring under a misapprehension when it wrote the decision. I cannot conceive that a court like the United States Supreme Court, that had studied the question so long and earnestly, and in so many cases as they have, would make such an obvious error as to confuse overhead charges and going concern value. After holding in that case that good will, in the sense in which the term is used, has no place in estimating going concern element in a public utility of this type, Justice Day says:

“‘Going value,’ or ‘going concern value,’ that is the value which inheres in a plant where its business is established, as distinguished from one which has yet to establish its business has been the subject of much discussion in rate-making cases before the courts and commissions. * * * That there is an element of value in an assembled and established plant, doing business and earning money, over one not thus advanced, is self-evident. This element of value is a property right, and should be considered in determining the value of the property, upon which the owner has a right to make a fair return when the same is privately owned although dedicated to public use. Each case must be controlled by its own circumstances, and the actual question here is”—

I want to call particular attention to the facts that were presented to that court in the Des Moines Case, because I think they are very similar to the ones in this case—

“in view of the facts found, and the method of valuation used by him, did the Master sufficiently include this element in determining the value of the property of this company for rate-making purposes?

“Included in going value as usually reckoned is the investment necessary to organizing and establishing the business which is not embraced in the value of its actual physical property”—

Does that sound like the statement of a court that was confusing overhead and going concern?

"In this case, what may be called the inception cost of the enterprise entering into the establishing of a going concern had long since been incurred. The present company and its predecessors had long carried on business in the City of Des Moines, under other ordinances, and at higher rates than the ordinance in question established. For aught that appears in this record, these expenses may have been already compensated in rates charged and collected under former ordinances."—

I submit that the record in this case shows that the charges in question for the Spring Valley Water Company have actually been compensated.

"As we have said, every presumption is in favor of the legitimate exercise of the rate-making power, and it is not to be presumed, without proof, that a company is under the necessity of making up losses and expenditures incidental to the experimental stage of its business."—

That is a clear mandate in accordance with the ruling of Judge Farrington and nearly all of the other courts that the burden of proof is on the company, and unless they sustain it the allowance should not be made.

"These items of expense in development are often called overhead charges, for which, as we have already seen, the master allowed fifteen per cent. upon the base value (exclusive of real estate), or \$296,254, in addition to his allowance of \$6,923 for organization expenses."

Of these charges the master said:

"In reaching the physical value of the plant in question by the process of reproduction, it is necessary to bear in mind that the present value thereof represents much more than the machinery therein, the labor of installing and constructing them, and putting them in place to perform their various functions, ready for the manufacture and distribution of gas to its customers. Were the city of Des Moines without such a plant, and such a one as the complainant now owns was proposed, it would be found that much more than the mere cost of labor and

material would be expended. Such expenditures are termed overhead charges, and are as follows:

"1. Time and money expended in the promotion of the enterprise, in the organization of the company and interesting capital therein, including, also, legal expenses, obtaining the necessary franchise, as well as the costs of incorporating the company.

"2. Then a competent engineer must be employed to prepare the plans and specifications for the plant, and make the necessary surveys, and when the work began, to superintend the construction thereof, and see that it is done properly and according to plans and specifications. The successful operation of the plant depends largely upon its proper construction.

"3. Then losses arising from accidents and injuries to workmen as well as the material during its construction, which is such an amount as the cost of insuring against such losses, which is between 1 and 2 per cent.

"4. Contingencies are such expenditures as arise from the lack of foresight and care preparing the plans and specifications. No matter how careful the engineer may prepare them, such expenditures invariably arise. Mr. Alvord testified that this allowance therefor would depend very much upon his knowledge of the engineer who prepared them, but that no matter who prepared them, they would invariably occur, and an allowance should be made therefor. The careful and thorough inventory in this case reduces very greatly the allowance therefor.

"5. The cost of administration, which includes the time and money expended by the parties who are engaged in the enterprise, purchasing the material, procuring the money for their payment as needed, and generally superintending the entire enterprise during the construction of the plant.

"6. It is estimated that it would take three years to complete the plant in question, and that at least one-half the time and money invested therein would give no return, and that a loss of interest would result therefrom, and that such loss would be included in the overhead charges.

"7. Taxes during the construction. The latter is regarded by me as very questionable."

THE MASTER—In that last remark, Mr. Searls, you must understand that Justice Day is quoting from the master; that is

not his own language. I don't see anything questionable about it, and I don't think you do. I don't want that language charged to Justice Day.

MR. SEARLS—I did not intend to misquote him, your Honor. The opinion proceeds as follows:

“While there is a difference between court and counsel as to what the master meant by this (his interpretation of the Cedar Rapids case), we think it is apparent that he meant to say that, applying the rule of the Cedar Rapids case, he had already valued the property in the estimate of what he called its physical value, upon the basis of a plant in actual and successful operation; for he said that otherwise its value would be much less.

“As pointed out in the Cedar Rapids Case, if return is to be regarded beyond that compensation which a public service corporation is entitled to earn upon the fair value of its property, the right to regulate is of no moment, and income to which the corporation is not entitled would become the basis of valuation in determining the rights of the public. When, as here, a long established and successful plant of this character is valued for rate-making purposes, and the value of the property fixed as the master certifies upon the basis of a plant in successful operation, and overhead charges have been allowed for the items and in the sums already stated, it cannot be said, in view of the facts in this case, that the element of going value has not been given the consideration it deserves and the appellant's contention in this behalf is not sustained.”

7. Metcalf's Testimony Fits Des Moines Case Rule.

Now, referring to the record in this case, I wish to call your Honor's attention to the testimony of Leonard Metcalf, witness for complainant, at pages 10,535 and 10,536 of the record. On cross-examination, with the decision of the Supreme Court of the United States in the Des Moines Case before me, I asked Mr. Metcalf this question:

“Q. Now, if you will refer to Table 7, which indicates your comparative method—I want to refresh your memory first from your testimony as to the items that were included in your discussion of overhead. I find on page 7659 of your

testimony, and I am reading from the printed record which is quoted from your exhibit:

"'In such a classification'—and by 'classification' you previously referred to overhead costs—'there would be included in these overhead costs the following general groups of items:

"'1. Preliminary expense, incorporation and promotion; 2. Engineering and superintendence expenses; 3. Legal expenses; 4. Administration expenses; 5. General and miscellaneous expenses; 6. Discount and cost of marketing securities; 7. Contingencies, omissions, etc.; 8. In some cases interest during construction costs, though the latter is here, and ordinarily, accounted as an independent item of expense; 9. Taxes during construction, though this item is sometimes accounted in the development expenses.'

"As I understand it, your development expense as figured on a comparative method, does not include any of these items: Is that correct? A. Yes. I have included in the reproduction cost the allowance for the overhead; everything except the discount upon the bonds; that I considered as being part of the rate, Item 6, Discount and cost of marketing securities; I think elsewhere in my testimony I call attention to the fact that while some of the rating commissions, as New York, for instance, do allow for that, and others do not, and I have always been in the habit of considering that as a part of the cost of money. For the purposes of this discussion, of course, I have included in the cost of the comparative plant a reproduction cost estimate of the property which does include the engineering, superintendence and overhead and the interest-during-construction item.

"Q. Did not your overhead charges include all these which you have enumerated in your testimony at this point? A. Yes, I think so, except Item 6, Discount and cost of marketing securities.

"Q. By overhead is included interest during construction for the purpose of this question. That is, in overhead and interest during construction you include all these items? A. Yes, I do.

"Q. Except the discount on securities? A. I think so; that is my recollection, Mr. Searls.

"Q. So that when you came to discuss the question of development expense you meant something in addition to these items which you had already included in your overhead? A. Oh, yes, certainly."

Then he goes on to state that the physical labor of connecting the taps with the mains was accounted for as he understood it in Mr. Hazen's reproduction of those mains. If your Honor will compare that testimony with every one of the findings of the master in the Des Moines case, it seems to me you must come to the conclusion that Mr. Metcalf included just the items that the master did there; and if you will read Mr. Dillman's testimony you will find he included those items in his overhead; the one item about which there may be some question is the item about the preliminary organization and promotion, which Mr. Dockweiler said he did not take account of; I don't know whether Mr. Dillman included it or not. I don't think he did.

THE MASTER—I believe Mr. Hazen did not.

MR. GREENE—He included the preliminary engineering expenses, your Honor, but the expenses of promotion he left out because he said he did not know what they would be.

MR. SEARLS—It seems to me this brings the case within the particular circumstances of the Des Moines Gas Case, and puts it in the class where the Supreme Court itself has said that no additional allowance should be made for going concern. I am aware that counsel will probably state in reply that you must allow additional interest during construction, unless you allow going concern, but I am at a loss to know upon what theory he should say that; if you assume a period of construction, the interest will run for just half that time, as the master said in the Des Moines Case.

MR. GREENE—If your theory be correct, Mr. Searls, would you think that Mr. Dillman's allowance of 5.8% was a proper allowance to cover both items?

MR. SEARLS—Well, personally, Mr. Greene, I am more inclined to rely on Mr. Dockweiler's estimate as to the proper overhead and interest-during-construction. I am influenced in that also by the fact that Mr. Ellis saw fit to give his items some weight in his closing testimony. It seems to me that that would be the maximum.

THE MASTER—Mr. Searls, let me get your ideas a little

further on that Des Moines case. With the final remarks of Justice Day before you, would he have come to any different opinion as regards the decision of the case if he had entirely omitted his reference to overhead? It would leave it, then, in this shape—I have not the words before me, but it would be practically this: The element of going concern is an element of value that must be allowed in these cases; it is the value that inheres in a plant that is in successful operation. The master has found the value of this plant, and has certified that he has so found it, on the basis of a plant that is in successful operation; the element of going concern is thus taken care of.

MR. SEARLS—Taken in connection with the master's report as to how he found that value, I think Justice Day would have found just the same. I don't know that I clearly understand your Honor's question.

THE MASTER—Did the master give any weight in his report to the question of overhead allowances? I do not seem to recall that he did.

MR. SEARLS—This is a quotation from his report showing just what he said about overhead allowances:

"In reaching the physical value of the plant in question by the process of reproduction, it is necessary to bear in mind that the present value thereof represents much more than the machinery therein, the labor of installing and constructing them, and putting them in place to perform their various functions, ready for the manufacture and distribution of gas to its customers. Were the city of Des Moines without such a plant, and such a one as the complainant now owns was proposed, it would be found that much more than the mere cost of labor and material would be expended. Such expenditures are termed overhead charges, and are as follows:"

It is clear that he added those charges to the direct costs of his construction, and gave the result as the value of the plant as a going concern.

THE MASTER—I did not recall that he related it in any way with the question of going concern. That seems to have been the thought of Justice Day. You read something at the very

beginning there that I had forgotten, and it struck me rather forcibly, referring to the historical features of the elements of going concern, that is, the actual early deficits and operations; Justice Day said that those are usually spoken of as overhead allowances, or words to that effect. Of course, that is not what they are called in this case, or in the analysis by the master. It seems to me that Justice Day is on the wrong track there.

MR. SEARLS—Of course, if you make that assumption you can get anywhere. It seems to me that a decision of the United States Supreme Court, which decision was concurred in by all the justices, ought not be susceptible of any such interpretation, or that that is any way of getting around it. I think the Supreme Court has felt all along just as I feel, that the plant, as a going concern, is taken care of—that is, the value of the plant as a going concern is taken care of when you have added these overhead charges.

THE MASTER—You have not stated that the addition of overhead charges has anything to do with going concern; your idea is that if you take the present value of these units—structures, lands, and so on, which reflect the advances in general prices, you are giving recognition to the fact of going concern.

MR. SEARLS—I did not intend in that to exclude the overhead charges from consideration as a part of the cost of the plant.

THE MASTER—Exactly, and your argument—with all due respect to the Supreme Court and to you—is much better than that of the Supreme Court in respect to overhead charges. Overhead charges in the sense we have had them here, and as I believe in the sense the master used them there, are, as you say, nothing but elements of cost. When you take, for example, engineering, which is a distinct element of overhead charges, that has no more relation to going concern than the wages of trenchmen, it is an item of cost. It seems to me that the whole reference there to the question of overhead allowances is an unfortunate one, because I don't think it has anything to do with the subject.

MR. SEARLS—I think what the justice may have had in mind in speaking of those items of development expenses, might have been interest during construction; that bears a closer relation to development expense than some of the other items.

THE MASTER—Possibly the promotion and the preliminary work. To do justice to the contention of Mr. Metcalf, you must admit that the overhead allowances cease with the completion of construction; the going concern allowances, if we are to regard them as proper at all, begin at that point and extend to a later period.

MR. GREENE—And also that Mr. Metcalf's overhead stops at the conclusion of the construction of a separate unit.

THE MASTER—Yes.

MR. SEARLS—I think this whole business of assuming in a reproduction theory that separate units are going into use separately is carrying the hypothesis too far; while, no doubt, in the construction of a plant of this size, it would be completed a unit at a time, we are figuring the cost of reproducing a plant sufficient to supply all the consumers that the company has as of a given date. If you assume the plant is going to come in unit by unit long prior to that date, you are making another assumption contrary to the facts as they exist. It seems to me it is very much like making the assumption merely as a basis to give him a chance to claim the development expenses.

In the *Knoxville Case* the court assumed that the going concern allowance made was proper, although it did not decide it.

In the case of *Bonbright v. Geary*, there was a conversation which took place at the conclusion of the decision, and which was reported with the decision, which I think throws a little light on it:

“MR. BULLARD—There is one thing I want to be clear about, your Honor, as it will be of importance for the Corporation Commission to understand it clearly. In speaking of this question of going value did you intend to approve the theory of going value to the amount specified by the experts for the complainant?

“JUDGE MORROW—No. What we hold is that some amount should be allowed. On that element I have frequently been confronted with the question of the value of a going concern, and I have never yet been able to determine such valuation upon the evidence submitted, and we are not able

to make it now in this case. We simply say it appears to have a value and the subject should be considered by the court.

“JUDGE VAN FLEET—All that we are agreed upon here is that upon principle there should be a greater value attachable to a going concern than one which is merely in its initiative and not enjoying the benefit of patronage.”

Of course, that was on preliminary injunction. The court was granting an injunction to keep matters in *status quo* until it could decide the case. Inasmuch as the commission admitted there they had not given any consideration to the subject, and that fact was presented to the court, I think the court very properly said that the motion for a preliminary injunction from that consideration should be granted. That was one of the grounds on which they awarded a temporary injunction until the matter could be reviewed.

In the case of *Brunswick Water District v. Maine Water Company*, 99 Maine, 371, 376, 59 Atl., 537, 539, the court said:

“We speak sometimes of going concern value as if it is, or could be separate and distinct from structural value,—so much for structure and so much for going concern. But this is not an accurate statement. The going concern part of it has no existence except as a characteristic of the structure. If no structure no going concern. If a structure in use, it is a structure whose value is affected by the fact that it is in use. There is only one value. It is the value of the structure as being used. That is all there is to it.”

Of all the decisions of courts that I have read, that one appeals to me as containing the largest amount of common sense as dealing with the situation as it exists and not as it might be thought out from a hypothetical basis.

The *Cedar Rapids Case* seems to have been the primary inspiration to the master in the *Des Moines Gas Case* for separating out his going-concern allowance and eliminating it in his final report. I will refer to that briefly; your Honor is undoubtedly familiar with that case. It is reported in 91 N. W., 1081, and also decided by the United States Supreme Court.

It is interesting also to note *Mr. Whitten's* conclusions, as

expressed in his first volume, page 497, after a very exhaustive review of all the cases in the country on this subject. He says:

"The preponderance of precedent is at present undoubtedly against the inclusion of going concern value in a valuation for rate purposes. This seems also to be the position of the Supreme Court of the United States."

He reviews each of the cases. Then he says:

"In *Knorrville v. Water Company*, 1909 (See Sec. 560), the court found it unnecessary to pass on the question. In *Omaha v. Omaha Water Company*, 1910 (See Sec. 535), in which the Supreme Court lays down the rule that going value should be considered in a purchase case, the inference is strong that the court considers that there is a clear-cut distinction in this problem between rate and purchase cases (see Sec. 535). In *Cedar Rapids Gaslight Co. v. City of Cedar Rapids*, 1912 (see Sec. 557), the Supreme Court holds that where a court, in fixing fair value for rate purposes, has taken 'into account the fact that the plant was in successful operation,' it has given adequate consideration to the going concern factor. Taken in its context, this seems to mean that if a plant is in successful operation it is entitled to a valuation based on the cost or the cost of reproduction less existing depreciation of the complete plant and not upon the mere salvage value of its separate units. If the plant were to be dismantled the separate units would have a comparatively small value, but so long as the plant is in successful operation and entitled to continue such operation the plant must be valued as a going concern. This seems to be a complete denial of the claims of the advocates of a separate and distinct allowance for going value or going concern value."

In his second book, at pages 1215 to 1217, he expresses the following opinion:

"Courts and commissions have in most cases in recent years considered going value as the actual cost of establishing the business. The rule laid down in many cases by the Wisconsin Railroad Commission, and followed by various other authorities, is to consider as going value the uncompensated losses incurred in the development of the business. That is, going value is ordinarily the amount by which early failure to earn a fair

return has not been offset by subsequent earnings in excess of a fair return."

And again, at page 1217:

"Most commissions in considering the cost of establishing the business have considered the estimated actual cost and not the estimated reproduction cost of such establishment. Even where commissions have relied upon the reproduction method in determining the cost of the physical property they have usually tried to estimate the actual rather than the reproduction cost of the established business. This seems strange in view of the fact that it is much more difficult to determine the actual cost of establishing the business than it is to determine the actual cost of physical property when such cost is taken as the first cost of the units now in place (see Sec. 1016). A reason for turning to the actual-cost method to determine the cost of the established business is found in the fact that it is considered that this allowance should cover only uncompensated losses, or the amount by which early failure to earn a fair return has not been offset by subsequent earnings in excess of a fair return. If this principle is accepted, it is clear that a hypothetical reproduction process could scarcely be applied.

"In a few recent cases the Wisconsin Commission has considered an estimate of the cost of reproducing a paying business in fixing fair value. The reproduction-method as thus used is not the comparative-plant method, but an estimate of the losses that would be incurred assuming that the enterprise were to be started under present conditions. It only includes failure to earn a fair return up to the time when it is estimated that the business will have been placed on a paying basis. The estimate under this method is naturally much less than would ordinarily be found under the comparative-plant method, and is ordinarily also less than the probable total actual cost to the company of developing its business."

I have cited from Whitten rather than reading in detail from all the commission decisions which he quotes in his volume. I assume your Honor has those and you can read them when you come to this branch of the case.

There is also Judge Farrington's ruling, made in all of the

cases that he decided, that the burden of proof is on the complainant to establish this element, and unless they do establish it by some method that the court can accept, it should not be allowed.

VIII. PAVING OVER MAINS.

I refer to the question of paving over mains, which counsel raised on his argument, and simply say in passing that the decision in the Des Moines Gas Case appears to hit that point squarely and to dispose of the contention. I refer also to the decision of the New York Court of Appeals in the case I quoted from, the case of *Kings County Lighting Co. etc. vs. Wilcox* (210 N. Y., 479), as well as all the Commission decisions cited by Mr. Whitten in his work.

IX. SUMMATION OF VALUATION.

Thus far I have treated in detail the various elements of the company's plant which were valued by the various witnesses. I come now to the summation of the case and the tests which tend to determine the sufficiency of the valuation as a whole. Thanks to the diligence of Mr. Metcalf and his staff, we have very complete figures as to the original costs of the properties and the valuation based on the sales of securities, as well as the original investment. The accompanying schedule, Table 27, shows the comparative rating bases of Messrs. Hazen, Metcalf, Dillman and Ellis. Nearly half of the wide difference between Dillman and Hazen on the valuation of the property as a whole is due to exclusions claimed by the defendants of real estate not in use, the remainder of the difference being almost equally divided between valuation differences in real estate and structures, including water rights and rights of way as part of real estate. Mr. Hazen's summation is attained in his final schedule filed as Exhibit No. 164; Mr. Metcalf's in Exhibit No. 201; Mr. Dillman's in Exhibits 212 and 213, and Mr. Ellis's in Exhibit No. 214.

TABLE 27.

COMPARISON OF RATING BASE OF WITNESSES FOR
COMPLAINANT AND FOR DEFENDANT

Item	COMPLAINANT		DEFENDANT	
	Hazen	Metcalf	Dillman	Ellis
Lands	15,728,000	18,243,000	6,460,500	6,460,500
Structures	20,292,638	19,976,000	13,000,000	13,204,543
Water Rights.....	3,850,000	4,000,000	1,933,000	1,933,000
Rights-of-Way ...	500,000	Incl. in Land	206,500	206,500
Working Capital..		100,000	*400,000	*400,000
Going Concern....		3,400,000		*Includes Inventories.
TOTAL	40,370,638	45,719,000	22,000,000	22,204,543
Used	40,000,000	43,500,000	22,000,000	22,204,543
Lands and Rights.	\$20,000,000			
Structures.....	20,000,000			

None of the witnesses except Mr. Metcalf have made any separate allowance for going concern value, although we certainly claim for the defendants that that element has been very carefully considered in the appraisal of all our witnesses. Mr. Hazen refuses to find any value of the properties as a whole, but specifies his figure of \$40,000,000 as a rating base to be used only if we give him 7 per cent. as the rate of return. This is a very ingenious idea on Mr. Hazen's part, but I fail to see how your Honor can use it unless you accept Mr. Hazen's valuation in toto, and without any deduction for manifest errors appearing therein. Mr. Hazen was not called upon to decide this case as a judge, and it seems to me that his opinion as to what would be equitable to the complainant under the circumstances is not to be given much weight, at least no more weight than the humble opinion which I offer in behalf of the defendants that it would be very inequitable to them to allow the complaints to earn the highest cost of new money on a rating base which includes 48,000 acres of real estate, which is not and never has been in use, valued at three times its original cost. I find myself wholly unable to use Mr. Hazen's valuation at all on the basis which he attempts to prescribe, and for the purpose of this argument I am going to arbitrarily separate his rating base and his rate of return in order to have matters on a comparative basis, at the same time making the admission that he does not approve of such an assumption. It seems to me that if the complainant's properties had the value that he says they have, it must be irrespective of the rate of return,

because normally a low rate of return would give a lower value, and a higher rate a higher value, and we would not get anywhere with the use of that theory; it could only be justified on the basis that you are doing equity to the complainant.

1. Structures.

Taking the main subdivision of the system as real estate, structures and working capital, we find a difference of \$6,665,000 between the reproduction costs new of the structures and \$8,622,000 between the depreciated values of the structures. According to Mr. Metcalf's testimony, Mr. Hazen's reproduction cost is about 20% in excess of the original cost of the structures, and his net depreciated reproduction cost also about 20% in excess of the similarly depreciated original cost. Mr. Dillman's testimony (p. 10,846 of the record) shows that he has accepted Mr. Metcalf's original cost figures as shown in Exhibit 170 for structures, and that by applying to them his own overhead percentage and his own percentage of annual depreciation, using Mr. Hazen's method, there would be a figure of \$14,400,000 as the net depreciated original cost with overhead, including structures which have been used and abandoned, including Islais Creek structures; Locks Creek development; Lobos Creek structures, including a pumping plant at the mouth of Lobos Creek plant near the Presidio; the Upper Pilarcitos Dam and a large portion of the Upper Crystal Springs Dam. If those structures were taken into account as having been abandoned and we assume that they were written off their plant account in early years and charged to operation in some way,—which of course is not borne out by the record, but neither is the assumption that they were not charged off borne out by the record,—the subtraction of a sum that was approximately adequate for those items would bring the original cost of structures in use, with Mr. Dillman's overhead and depreciation allowance applied on the theory which Mr. Hazen first suggested,—to a figure of about \$12,500,000. That is not exactly accurate but we simply figured it this way: Mr. Metcalf, in Exhibit 170, estimates structures which have been used and abandoned at about \$2,617,-

639; to that should be added Mr. Dillman's overhead and depreciation allowance on the same basis; it is impossible to figure what the depreciation would be because we cannot get the exact number of years; as a rough check it would bring the total original cost, with overhead and depreciation of the structures now in use, in the neighborhood of \$12,500,000.

MR. GREENE—Mr. Searls, if you will pardon me an interruption,—Mr. Sharon says you have a duplication there; Mr. Dillman's structures were already taken out of his \$14,500,000.

MR. SEARLS—All of those which he valued but which are not now in use. When he reaches the \$14,500,000 he says he has not accounted for abandoned structures which went out of use before the years involved in this litigation.

MR. GREENE—Mr. Sharon says he has actually accounted for them. That is something that ought to be cleared up, Mr. Searls, if you are not right about it.

MR. SEARLS—The original cost of structures now in use without overhead or depreciation as determined by Mr. Metcalf on the second sheet of Exhibit No. 170, is \$17,653,000. Mr. Hazen's corresponding reproduction figure is, in round figures \$19,500,000; Mr. Dillman's figure is \$16,300,000, including Dockweiler's figures as to the Calaveras Dam cost because Mr. Dillman did not include the Calaveras Dam cost in his reproduction, but in order to get it on a comparable basis with Mr. Hazen's estimate I have added it. Mr. Dockweiler's figure is \$15,800,000, and the composite figure which Mr. Ellis uses is \$17,550,000, practically the same as the original cost without overhead or depreciation.

Speaking on purely general grounds I see nothing unreasonable in any of these figures. It is only by a close study of the individual items which were appraised in making up the totals, that we can come to any definite conclusions. Mr. Hazen's depreciated value shows a wide margin over Mr. Dillman's, on account of his use of the sinking fund method in obtaining his accrued depreciation—or a method which is based largely on the sinking fund method as a guide; perhaps Mr. Greene will dispute

that but it is an approximate statement anyway—whereas Mr. Dillman uses the straight line. As I stated in my argument on the question of depreciation, I believe in the present state of our knowledge of this subject we should stick to the straight line method, which involves the least opportunities for error, until something better is shown us. The value of the structures today as determined by this method is just as likely to be the true value as the value determined by the sinking fund method. Mr. Metcalf is very anxious that we should take obsolescence into account in figuring the annual depreciation allowance, and our witnesses have done so; but when we also take into account this item of obsolescence in determining depreciated value—and there is no question in my mind but that obsolescence does affect market value—we are met with the most vociferous objections that our depreciated condition does not tally with the physical condition of the plant. There is no reason why it should. If we are going to buy a structure which within an estimated time will obsolesce, we should be required to pay just that much less for this structure, and complainant should be allowed to amortize that less any value due to obsolescence.

2. Lands and Rights.

Taking the total figures for the lands and rights, Mr. Dillman uses \$9,000,000; Mr. Metcalf uses \$21,045,000; Mr. Hazen uses \$20,000,000. The original cost, as shown in Sheet 32 of Exhibit No. 170, was \$7,771,000, comparable with Mr. Hazen's allowance, but not with Mr. Dillman's. Excluding the land at original cost which the city contends should be excluded as not used or useful, \$3,231,000 (Dillman 10,845), the net total would amount to \$4,540,000 comparable with Dillman's \$9,000,000. If the lands be assumed to appreciate at the average annual percentage of 2 per cent. which Mr. Metcalf uses in his original cost calculations and for the purpose of determining development expense, and the lands out of use be deducted with same increment in value, the present value of the lands in use based on original cost plus 2% annual increase would be \$8,163,000, comparable with the \$9,000,000 which Mr. Dillman uses (p. 10,845).

Tested in this manner Mr. Dillman's appraisal seems entirely reasonable, whereas the figures used by complainant amounting to nearly three times the original cost of the lands and including 48,000 acres which we contend are not used or useful, appear very grossly excessive.

The witnesses agree on \$100,000 as a proper working capital allowance, so I need not discuss that figure.

The situation with respect to appreciation in land values illustrates the contention which I suggested to your Honor at the opening of the argument, to the effect that if the corporation is to be allowed to always earn a return on the ever increasing valuation of real estate, the time will come when the water rates become so excessive that great injustice would be done the consumers if rates were allowed sufficiently high to earn a return on such maximum value. It is not enough that complainant should claim a return on the appreciated value of the land which is actually in use. They want also a return on the appreciated value of land which never was in use, and the land which cannot in the nature of things come into use for years to come. Not being in use it is not earning any return as water supply property, and only serves to add to the ever increasing burden of the rate-payer supplied by the property which is in use.

I cannot agree with Mr. Hazen's contention that lands destined for future use should be added to the appraisal at this time. When the company, by a judicious expenditure of capital for new structures, places that property on an earning basis, thousands of consumers who are today awaiting more water in San Francisco will be able to take care of the burden of the investment. Until this is done the company should consider these lands as investment constantly appreciating in value, upon which they will be entitled to earn a return when they are put to use at the then appreciated value, or for which they will receive full appreciated value if the properties are sold prior to that time. So far as the Merced lands and the Pleasanton Ranch lands are concerned, the sooner the company sells them and devotes the proceeds to much needed structural investments, the better it will be for them and the better it will be for the city.

3. Valuations as a Whole.

Taking the values as a whole then and comparing them with the original cost, the original investment, Judge Farrington's value and the cost of alternative sources, I reach the following conclusions:

First: That Mr. Dillman's rating base of \$22,000,000 and Mr. Ellis's slightly larger base complies with all the requirements of the constitution with respect to the value of all properties which are now used and useful.

a. Compared With Original Investment.

If we subtract from the total amount originally paid in by the stockholders, shown by revised Exhibit No. 12 C. C. to be \$27,526,000, the total original cost of structures and lands and appurtenant rights which were either never used or have gone out of use according to Mr. Metcalf's admission (shown on his revised Table B and B 2, Exhibit No. 170) amounting to \$4,417,000, we have left \$23,109,000. If from this there further be deducted the original cost of the lands excluded by the city in this case but not admitted as proper exclusions by the company, amounting to \$3,231,000 (10,845), we have left \$19,878,000 as representing all of the original investment of the company which is today devoted to public use. This includes nearly \$100,000 of structural items, such as Ravenswood wells and the Pleasanton Drainage canals, which might also be deducted as out of use. The rest of the complainant's investment represents property which has gone out of use and presumably been paid for, property which has not yet been put into use, and property which has not been and never will be useful for water supply purposes, but which represents an excellent real estate investment.

From this \$19,878,000 there should be then deducted the accrued depreciation on the structures now in use. Mr. Metcalf finds this to be \$2,912,000 on Table B, Exhibit No. 170. Mr. Dillman has not figured his depreciation separately, although he indicates the computation that he would make (10,846).

Let us assume for the moment that Mr. Metcalf is correct

when using Mr. Hazen's estimated percentage of present condition. This would represent a net depreciated investment of \$16,966,000. This deducted from the \$22,000,000 which Mr. Dillman uses as his rating base leaves over \$5,000,000 for land appreciation, and also the accrued depreciation which we must assume to have been paid off if we deduct it in this way. In the figures I have just given, the only controverted deduction is the value of the lands which we claimed should be excluded and the company claimed should be included. It must be remembered that even if we excluded these lands from the rating base, the company still owns them and the value is still there, and the appreciation is still there. They can put them to any real estate use that they desire, and obtain from them all the revenue that such uses yield. So far as the Merced and Pleasanton lands are concerned, they can be sold at any time. From the company's own point of view, it would probably be more desirable to hold the Alameda watershed lands together with the idea in mind that they may some day be sold to the city, although if the company is pressed for realization upon its investment they can sell a very large acreage today without affecting the city's water supply, so long as they retain the water rights. There is no question but that scattered parcels like the Silva tract, Nusbaumer tract and Stone tract could be sold without any detriment to the water supply at all, provided only a pipe line right-of-way were retained through the Silva tract and the portion of the Stone and Nusbaumer pieces immediately riparian to the Alameda and Laguna Creeks.

b. Compared With Alternative Supply Costs.

Having eliminated the non-used properties from consideration, it is interesting to compare the rating base thus obtained on the base of the cost per million gallons of delivery of water to San Francisco from other sources, not for the purpose of obtaining any exact measurement of value by this basis, but merely for the purpose of determining whether it is within reasonable limits and also for the purpose of determining whether the cost of service is fairly measured by our valuation. It was with this in mind that

I had Mr. Wadsworth and Mr. O'Shaughnessy present some estimates as to the cost of the alternative sources. Mr. Wadsworth estimated the cost per million gallons daily of delivery from Hetch Hetchy, Cherry-Stanislaus, American-Consumnes, McCloud River and Sacramento River sources. Mr. O'Shaughnessy furnished the latest estimates made by him for delivery of various quantities from Hetch Hetchy sources. While all of these are preliminary estimates and subject to such weaknesses as preliminary estimates have, I think they are of some interest in a general way when placed on a comparable basis with the appraisal here made. Mr. Dillman has done this on page 10,849 of the record. He has added capitalized pumping costs to Mr. Wadsworth's estimates in order to make them comparable with the Spring Valley estimates, and has considered that the capitalized power value of all of these alternative sources except the McCloud and Sacramento would practically offset the cost of over-building these systems to take care of the larger amounts to be derived from them as time progresses and the cost of local storage in Spring Valley Peninsula Reservoirs or some other site to be selected—possibly Mr. Grunsky's Belmont reservoir—would do in a pinch.

On page 10,514 of the record the estimate is made that a million dollars gross per year would be derived from those sources. On page 10,764 Mr. O'Shaughnessy estimates that \$230,000 per year would be the net income from those sources and if you capitalize them at 5% it would give about \$5,000,000 as the capitalized net increment which should be considered if they are to be compared with the Spring Valley sources because if we built these sources and developed the power from them concurrently, obviously they are much more desirable to the extent that the power revenue will take care of the interest on the overbuilding. This comparison shows that Mr. Dillman's estimates based on a 41½ million gallon delivery, which, by the way, Mr. Lee shows is more than we have any right to anticipate as a dependable yield, gives a price of \$481,000 per million gallons daily (10,849). As against that Mr. O'Shaughnessy estimates for 160 million gallons from Hetch Hetchy, \$323,000 per 1,000,000 gallons per day,

which he states he would bring in if the Spring Valley should continue to be available and the remaining bay cities should desire to secure additional water from mountain sources (10,512), an assumption which seems to be entirely reasonable in view of the expression to date of all the bay city governments. If we are going to consider alternative sources, you cannot consider fairly that the Spring Valley source is going to be here supplying the city at that time; you have to consider it as an alternative proposition. If we eliminate the Spring Valley Company from consideration and consider the market that exists at present and in the immediate near future Mr. O'Shaughnessy's conclusion is that 160,000,000 gallons for all the bay communities would not be excessive.

THE MASTER—What would you do with the Spring Valley water?

MR. SEARLS—He says that would be available to such communities as would take it.

Similarly on the basis of Mr. Wadsworth's estimate with capitalized pumping added, Mr. Dillman gets \$474,000 for 133 million gallons daily from the Sacramento River; \$374,000 for 260 million gallons daily from the McCloud; \$439,000 for 215 million gallons daily from the American-Consumnes; and \$433,000 for 215 million gallons daily from the Cherry-Stanislaus (10,849). If, as Mr. Dillman assumes (10,850) the power possibilities of these mountain sources would yield such a revenue that when capitalized would offset the additional cost of overbuilding the tunnels and take care of the local storage costs, there seems no reason for not saying that these alternative sources would be very much more desirable than the Spring Valley system as an investment. The supply of water obtainable from these Sierra sources is so great, the quality so unquestionable, and the increasing market demand so sure that they make a desirable investment. With the Spring Valley sources, however, it is very problematical after they have developed their maximum storage at Calaveras where the company is going to get additional water in such quantities to meet the local demand. Failure to demonstrate that local sources can yield sufficient for the future needs of the community, let alone the present, has

induced the city to embark on its Hetch Hetchy project already, and the faith which the city has shown in embarking on this \$45,000,000 investment to my mind speaks much more strongly than Mr. Hazen's smooth assurance as to the sufficiency of the Spring Valley sources for years to come.

Mr. Hazen attempts to check his \$40,000,000 appraisal by reference to his own estimates of the Calaveras and Sacramento costs. For the Calaveras he gets a figure several thousands lower than his own estimate for the present system and for the Sacramento he has apparently no deductions for overbuilt tunnels. I don't know why he should make them if he assumes that all the present sources are to be considered in their present location and 60,000,000 gallons additional brought in. It is very obvious that San Francisco alone could take care of the 60,000,000 gallons for the next few years.

c. Compared With Judge Farrington's Valuation.

Applying all of the foregoing tests to the rating base used by the city, it would seem that that figure approximating \$22,000,000 is reasonable. Judge Farrington, it is true, found \$26,000,000 as the value in 1903. Mr. Ellis has shown that if this valuation be used (Exhibit No. 224) that with the addition of additional purchases and betterments used and useful since that date, and the deduction of accrued depreciated value, as of 1913 it should be \$26,871,251. If it be borne in mind that the learned judge included in that valuation all the Merced lands and all the Alameda watershed lands valued at figures very much higher than have been substantiated by any witnesses in this case—that is, so far as the watershed lands are concerned—it would seem that this figure is in itself not out of line with the valuation for rate-fixing purposes which we have used. In fact, we have deducted over \$5,000,000 worth of land which he included in his valuation and which I firmly believe would not have been included had there been the showing in the record before him which we have made here. On the other hand, I think that probably Judge Farrington's allowance for overhead was not large enough.

The record of that case will show that there were seven volumes of plaintiff's testimony to one of the defendants, and if complainant in that case could not with all that preponderance of testimony obtain a valuation in excess of \$26,871,000, I fail to see how they can justify it in this case where the defendants have had at least the time and opportunity to present a complete valuation of the properties. As I have suggested before, I do not believe that your Honor is going to find Judge Farrington's findings of fact of very great assistance in the trial of this case because you have not before you the record which he had, and our adjustment of his valuation to bring it down to date is perhaps more a matter of interest than proof which you will find of any particular value. There are many questions of law which were passed upon by Judge Farrington in a manner which I think is to be highly commended as sound judicial reasoning, and to those rulings I have from time to time referred and will from time to time refer. This much at least may be said, that defendants' valuation in this case is not out of line of reasoning with Judge Farrington's valuation, whereas the plaintiff's totals are very much so. Part of this excess is due to the very large overhead allowance made by complainant's engineers in this case—more than twice that which Judge Farrington found, part of it due to the extraordinary valuation placed by complainant upon their water rights, their large allowance for going concern which was entirely eliminated by the learned judge, and of course in addition to that the Pleasanton Ranch lands purchase and the increment which the plaintiff's witnesses found in the Merced lands accounts for large sums.

4. Future Intentions of Complainant.

I have purposely eliminated from this discussion all reference to the plaintiff's intentions for the future. They are clearly nothing but speculative statements of the complainant's witnesses, and with the sole exception of the Calaveras dam construction which is under way, are not borne out by any preparation made by the complainants during the years in controversy. While this

problem may have something to do with the fixing of future rates by the Railroad Commission when the matter is taken up, it is clearly not a matter which your Honor can consider in figuring rates for the years in controversy. Testimony as to what the plaintiff intends to do or what they might have done if the city had raised their rates to suit their ideas, has nothing to do with this case. If the company really shows some intention at a near future date of constructing the Calaveras conduit, I shall be glad to give the subject serious attention when it comes to rate-fixing in the Railroad Commission, but I am not going to give it serious attention here, and I can find no justification either in law or equity for your Honor's giving it consideration.

It is submitted that in allowing a rating base in the neighborhood of \$22,000,000 your Honor will have complied with every requirement of the constitution as to the value of complainant's properties used and useful in supplying the City and County of San Francisco and its inhabitants with water, and that the rating base greatly in excess of this figure is not justified either by the law or the evidence.

X. REVENUE AND OPERATION ACCOUNTS.

The second main branch of this case has to do with the net earnings which the water rates in question yielded to the company during the years in controversy. The determination of these net earnings involves a study of the gross earnings, operation and maintenance charges, taxes, and reserves. Messrs. Bailhache and Ellis for the city, and Messrs. Muhlner and Metcalf for the company, testified on these subjects. The results of the city's investigations are embodied in defendants' Exhibit No. 125, the totals of which were summarized by Mr. Muhlner in Exhibit No. 176, and were finally revised by Mr. Bailhache in defendants' Exhibit No. 208. This last exhibit has been subsequently revised by Exhibit No. 235, which makes a correction in the legal expense item, and a deduction for revenue, taxes and operation expenses appertaining to properties which the city claims to be out of use or non-useful. The plaintiff has made certain concessions which

are embodied in Exhibit No. 221, and are taken into account in Mr. Metcalf's Exhibit No. 201. With these exhibits and the record I think your Honor will be able to understand the evidence relating to the revenue and expense accounts.

1. Revenue.

Income account is defined by California State Railroad Commission on page 26 of its Classification.

The principal item of Income is Operating Revenues (Cal. State R. R. Com., page 26, Item 101), and it is from this that deductions are made to arrive at the Net Operating Revenue, on which is based the rate of return in rate fixing.

Permissible deductions from Operating Revenue to get Net Operating Revenue are as follows:

Operating Expenses—Shown to be actual and proper charges in the actual conduct of the business in supplying water.

Taxes—Shown to be actual and proper charges in the actual conduct of the business in supplying water.

Bad Debts—Uncollectible accounts due on Operating Revenue, consisting principally of unpaid water bills.

Reserves for Depreciation and Insurance—These cover depreciation and replacement charges, and insurance if carried by the company at its own risk.

There are no other charges deductible from Operating Revenue to arrive at Net Operating Revenue, but all other charges of Dividends, Interest on bonds, Sinking Fund charges and other various and extraordinary charges are payable from the remainder of Income account.

The revenue accounts as determined by all the witnesses agree, with the exception of a slight difference in years 1912-13, 1913-14, and 1914-15 in method of taking service connection revenue, the complainants including certain fire hydrant installations, showing \$116.09 more for the three years than the city. I merely allude to it in passing, it being an insignificant amount.

2. Taxes.

So far as taxes go there is no dispute between the city and the company except that during the last two years Mr. Bailhache has deducted the Federal taxes on the bond coupon payments. This tax is essentially a tax against the bond owner and not against the company, amounting to a guarantee of the full amount of interest, without deduction for income tax paid at the source. The Interstate Commerce Commission, in its rules prescribed for Electric Railways (Paragraph 225, page 62) prescribes that under the heading of Income Accounts shall be included an account for miscellaneous debits, a profit and loss account.

"This account shall include all items not provided for elsewhere and properly chargeable to Income Account, such as income taxes levied upon bondholders and assumed by the company under terms of mortgages, commissions, and expenses for paying interest coupons, and uncollectible freight charges for which service has been rendered."

The effect of including these charges in income account is of course to take them out of operating expense accounts, and leave them to be accounted for similar to other interest.

The taxes on the properties which are neither used or useful have been agreed upon and are deducted with the details shown on Exhibit No. 235.

3. Operation Accounts.

After a very thorough examination of the plaintiff's operation accounts, Mr. Bailhache takes exception to the several thousand items which have been grouped by Mr. Muhlner under various general headings in Exhibit No. 176. For the sake of convenience in discussion I shall refer to the classification made by Mr. Muhlner in this exhibit. It would involve a needless expenditure of time here to go into the complete detail of each of these classifications.

The record is fairly clear on this point, each topic was discussed by all the witnesses as it came up, and various contentions of a more or less equitable nature were advanced by counsel at

that time. I shall, however, refer briefly to the more important deductions and present such arguments and authority to sustain them as I have been able to gather. I might premise this by a statement that for the purpose of this hearing the plaintiff is entitled in calculating its net revenue to deduct only those operating charges which are shown to be proper charges against the revenue derived from its water business for the actual and proper charges in the actual conduct of its business in supplying water. It is not entitled to charge against its operating revenue, charges which should be properly carried in capital or plant account; it is not entitled to carry in its operating expense, charges which have nothing to do with the proper conduct of its business, although from the standpoint of the other interests of the company or its stockholders they may be proper charges to make against Corporate Surplus or Investment accounts. It is not entitled to charge to operation items which should be charged against its reserve accounts. Your Honor will find on inspection that the deductions which Mr. Bailhache has made as finally adjusted fall under one or the other of the headings which I have just suggested. It is no less incumbent upon this court, sitting under the Fourteenth Amendment of the Constitution, to see that only proper charges are included in the operation expenses than it is to see that only used and useful items are included in the capital account, and that property which is not used and useful should be excluded. Most of the items which Mr. Bailhache has excluded entirely from the Operating Expense accounts come from the administrative and expense items. Most of those items which he has excluded as more properly chargeable to capital or reserves come from the maintenance and repair items, with the exception of amounts deducted from General Salaries, chargeable to Capital.

The Spring Valley method of showing Operating Expense charges from 1907-08 to 1914-15 was largely a continuation of corporate methods prior to the advent of the State and National Commissions, which the abuses by corporate methods made necessary. In corporation accounting, the Auditing Department is often directed by the higher executives to make charges into operating

expense and other accounts in accordance with certain lines of policy.

Notable instances of improper charges to operating expense in the Spring Valey operating accounts and of ignoring the classifications set forth by the State Railroad Commission and proper accounting practice may be briefly mentioned under the following heads:

- a. Surveys and Preliminary Reconnaissance.
- b. Thefts and Shortages of Cash.
- c. Panama Pacific Int. Expo. Stock Subscriptions.
- d. Cost of Paying Coupon Interest.
- e. { Furniture and Fixtures.
- { Office Appliances.
- { Engineering Equipment.
- f. { Fences.
- { Roads and walks.
- { Care of grounds and forestration.
- g. Donations.
- h. Pumping equipment tools.
- i. Material and Supplies.
- j. Auto Equipment.
- k. Miscellaneous.
- l. General Salaries.
- m. Hydrographic work.
- n. Picnics, etc.
- o. Advertising pamphlets.
- p. J. G. White Appraisal.
- q. Legal Expenses.
- r. Rate Litigation Expense.
- s. Condemnation Suit Expense.
- t. Hetch Hetchy Opposition.
- u. Pumps—Maintenance Account.
- v. Bookkeeping Dept.
- w. Repairs, Maintenance and Operation.
- x. Buildings.
- y. Telephones.

- z. Change of pipe-line location.
- aa. Experimental Work.
- bb. Non-operating Accounts.
- cc. Supplies, operating.
- dd. Miscellaneous Administration Items.

a. Surveys and Preliminary Reconnaissance, Etc.

Mr. Bailhache has deducted from operating expenses for various years certain charges for the cost of making reconnaissance surveys and surveys designed for the correction of boundary lines. These deductions have been made on the theory that this was a proper overhead charge rather than an operation charge. Reconnaissance surveys should be added to overhead charges for new projects, and the boundary corrections to the overhead cost of the lands, the first to be taken care of in the capital valuation of new construction projects, and the second in appreciation in realty value. Authority for this deduction is found in rule of the State Railroad Commission, Cost of Fixed Capital, page 17, which reads as follows:

"Cost includes * * * preliminary plans and surveys and such portion of the expenses for engineering and plant supervision and general expenses. * * * as may be chargeable to the fixed capital accounts under an equitable plan of apportionment of such expenses."

Under this head the Spring Valley charged into Operating Expense large amounts, which investigation of the items shows to have been mostly surveys for Calaveras Pipe Line, Alameda Creek Tunnel, Alameda Creek, Crystal Springs Pipe Line, various property surveys in Alameda and San Mateo Counties, etc. The complainant, page 9171 of the record, indicated this account "to be correcting McEnerney titles and boundary lines," but analysis shows otherwise. (See pages 76-78, Vol. H; 76-77, Vol. G; 73-74 and 78-79, Vol. F, all Exhibit 125 for principal items.)

This shows Spring Valley statement of the character of these deductions was incorrect. Two-thirds of the deductions were for surveys for pipe lines, or along Alameda Creek, and were for improvements or for projected improvements. Very few of Mr.

Bailhache's deductions had anything to do with restoration of titles, or corrections of boundary lines, as claimed by witnesses in answer to the Master's question, page 9174 of the record, as to the accounting theory on which the witness put these charges into Operating Expense. Metcalf on page 9094 of the record admits preliminary reports, etc., should go into the cost of structures.

Muhlner, page 9107 of the record, says items of preliminary cost may be carried in suspense until construction work is done, or decided not to be done, and then charged; but on page 9175 of record, the same witness says the Spring Valley does not have a suspense account, which statement is borne out by their books. The witness also refers (page 9106) to Railroad Commission Classification C-1 as the proper place for preliminary expense to be carried, but this is not correct, as this classification C-1 is obviously intended to cover preliminary office and stock issue expense.

The only other account in the Railroad Commission classification concerning this class of charges is asset account 15, page 11, which specifies that such charges must be either charged to capital account or if abandoned to "corporate surplus or deficit."

The city therefore claims the entire amount of deductions under this head as shown in Exhibit No. 176 to be correct and not an operating expense.

b. Thefts and Shortages in Cash.

The Spring Valley witness claims that these items (contained in his segregation of Miscellaneous Eliminations), as being a proper charge to operating expense. The California Railroad Classification indicates the charge should be to corporate surplus (See top of page 31, R. R. Com. Classifications). If not, however, chargeable there, the losses by thefts and shortage in cash should be covered by surety insurance, as is done in other corporations, and it is therefore not an operating expense, except as to the cost of the surety premium, which is a small matter.

c. Panama-Pacific International Exposition Stock.

Mr. Muhlner admitted the purchase by complainant of \$30,000 of this stock, of which \$26,500 was restored by them in segregation

of Miscellaneous Eliminations. It cannot be conceived on what basis they construed this as an operating expense, except on the plea of charging everything possible to operating expense, or along the line of "current practice." The California Railroad Commission classes it as Miscellaneous Investment (See Item 8, Article C, page 8), and as the Spring Valley has conceded the deduction there is no further contention in this respect.

d. Cost of Paying Interest Coupons.

This is clearly part of the interest cost and should no more be charged into operating expense than any other fixed interest cost. The California Railroad Commission provides for such charges in Item 111, Article C, page 30, "Other contractual deductions from income"; while the Interstate Commerce Classifications for Electric Railways charges it to Item 225, page 62, "Miscellaneous debits." (This item was included by Spring Valley in their segregation of Miscellaneous Eliminations.)

e. Furniture and Fixtures, Office Appliances and Engineering Equipment.

Mr. Bailhache has deducted from operation expense a large number of items which cover the acquisition of \$30,000 worth of furniture, fixtures, appliances and engineering equipment for the company's offices, as being capital charges. These deductions have been properly made, and are supported by the State Railroad Commission. On page 23 of its classification of accounts for water corporations, Rule C-18 prescribes that they should be charged to "General Equipment."

"General Office Equipment. This includes the cost of all equipment of general offices, such as desks, chairs, tables, movable safes, filing cases, drafting-room equipment and other like office appliances and equipment; also engineering instruments."

Rule C-19 provides that there should be charged to "Undistributed Construction Expenditures," under the heading of "Engineering and Superintendence":

"All expenditures for services of engineers, draftsmen and

superintendents employed on preliminary and construction work, and expenses incident to the work of such employees when the expenditures cannot be assigned to specific construction accounts."

It is submitted that this last rule covers engineering maps and records which relate to new construction as it comes up in the land acquisition and other incidental preliminary work to the extension of their capital accounts.

Similarly the rule of the Interstate Commerce Commission System of Accounts for Electric Railways (page 103, Rule 537) requires that

"* * * movable furniture and fittings for general offices
* * * such as desks, tables, chairs, carpets, cases, movable partitions, railings and shelves; typewriters, addressing machines, adding machines, and other office devices; stoves, portable gas and electric fixtures, and other office fittings,"

shall be charged to a capital account known as "Furniture Account."

Muhlner, on page 9167 of the record, says the entire amount of office appliances—\$14,000—is made up of typewriters and adding machines. If so it is an extraordinary amount of such appliances. In refutation of this, see Exhibit No. 125, 52 and 53, Volume B, items marked V. A. T. (Vickery, Atkins and Torery), amounting to \$1250.00 and \$917.35, also page 73, Vol. C., two items, one of \$500.00 and the other of \$727.25, also marked Vickery, Atkins and Torrey, these items being fine fittings for executive offices. On page 9167 of record, witness says "the furniture was bought to replace furniture lost in the fire." If this is so it should have been paid for from insurance received by Spring Valley for fire losses, which they credited to their capital account, or from their rehabilitation account of \$611,336.31, afterwards charged by them to replacement. The Interstate Commerce rules referred to by the Spring Valley cover only furniture bought to replace worn out or obsolete furniture, and not furniture bought to replace fire losses, or new furniture and fittings. A business like the Spring Valley Company's requires additional new furniture

and office appliances from time to time to equip their growing business, as will be seen by comparison of their constantly growing book-keeping and other office expenses.

The Railroad Commission classifications, page 23, item C-18, indicate that all of the deductions made by the city are a capital charge and not an operating expense, and an examination of the record and exhibits relating to this class of items will, I am sure, satisfy your Honor that the deductions have been properly made.

f. Fences.—Walks.—Roads and Drives.—Trestles.—Improvement of Ground.

The complainant charged a large amount under the above heads to operating expense, entirely ignoring the Railroad Commission's classifications.

Some of the items deducted by Mr. Bailhache and charged to capital under this heading are shown in Joint Exhibit 179, and some have been conceded by complainant in Mr. Muhlner's Exhibit No. 221. The rest of these items segregated under "Care of Gardens, Forestration, etc.," we insist should be charged to capital expenditure under the authority of Rule C-6 and Rule C-16 of the California Railroad Commission, which states that there should be charged under the general head of "Pumping Capital,"

"* * * all fixtures attached to such structures and a permanent part thereof—together with fences, walks, trestles, drives, grading and improvements of grounds."

All these improvements tend to the betterment of the property and the increase of its value and the Railroad Commission instructions are clearly set forth covering the same.

Mr. Bailhache states (p. 9226) :

"I didn't make any deductions from the ordinary expenses of maintaining the ordinary garden work about the company's properties. There were trees and planting done around the Sunol Temple, and around Pleasanton and also on the reservoir sites, that I call forestration, and I took it out as a capital charge. I was, to a certain degree, governed by the amount involved, but not particularly. Where there were

a few trees planted, I paid no attention to it. I took mostly the larger amounts of forestation put on the watershed, adding to the value of the property of the company. If the company is adding to the value of its property by planting, they should put it in their capital account, not in their operating account."

Counsel for the Spring Valley Water Company, page 1358, says that \$9,740.00 in Fence account should be charged to Operating Expense because it is renewal, or in other words, a replacement. The Spring Valley has a reserve account to cover replacements, which are not an operating expense charge. Ordinarily repairs to fences, (not deducted by the city), may be charged to Operating Expense, but not charges for building fences new, or rebuilding fences on property acquired. The entire amount of these deductions are reasonable and are supported by the Railroad Commission's Classifications as heretofore shown.

g. Donations.

The complainant charges over \$20,000 into Operating Expense under this head, a clear violation of the Railroad Commission's Classification which provides that if Spring Valley wished to donate, it should have been at the expense of their surplus fund, and not chargeable to Operating Expense (See page 31, Item 114, Cal. R. R. Com. Classification).

However, I believe that no dispute remains on the subject of these deductions. The city has restored the few small items which pertain solely to gratuities and donations to the company's own employees for funeral expense, etc., and the company has conceded the rest of the items as being proper deductions.

h. Pumping Tools and Appliances.

The Railroad Commission under Item C-7, Pumping Equipment, page 20, specifies "necessary tools and appliances" as chargeable to this capital account, and the city contends for all deductions made under this head as shown in Exhibit 176, p. 9.

i. Material and Supplies.

On page 9121 of the record is a statement by Mr. Muhlner that the item of \$4,538.22, included in Operating Expenses in Fiscal Year 1911-12, was the "cost of transporting iron plates to be used for pipe, from Risdon Iron Works to Millbrae Station."

Page 9, Item 9, Railroad Commission Classifications, says transportation is an added cost of material and shall be included in Materials and Supply account, which is a capital account. (This is in Spring Valley segregation, Miscellaneous General Ex. 176.)

j. Auto Equipment.

While this account has been amortized by agreement on account of not having been provided for under Depreciation Reserve, nevertheless the Railroad Commission specifies the same as a capital account and not an operating expense. See page 23, R. R. Com., Item C-18, Section D, General Stable Equipment.

This completes the list of the direct violation of the California Railroad Commission's Classification, concerning which Mr. Muhlner (pages 9141 and 9142) says that although the Railroad Commission rules became effective January 1, 1913, "the company's policy was not altered though, particularly; it made very little difference," and explains on next page that the company had been operating practically under the same rules since 1907.

It would appear from the above testimony that the Spring Valley has paid little or no attention to the classification rules of the Railroad Commission for Water Corporations, but at all times charged what they chose into operating expense.

The California Railroad Commission has set forth in 52 rules marked from E-1 to E-52, on pages 36 to 46, full detail of what may be charged into Operating Expense. These rules cover labor, maintenance, repairs, and miscellaneous supplies and expenses, and clearly set forth what may be charged therein to Operating Expense. Had the Spring Valley lived up to the Railroad Commission's Classifications or to a correct system of accounting, there would have been no necessity for deduction of the many improper items

found by the city and now objected to in their Gross Operating Expenses.

The remaining segregation of deductions made by the Spring Valley on pages 9 and 10, Exhibit 176, are as follows:

k. Miscellaneous and General Administration Items.

Of the amount shown here \$12,780. was restored by City in Exhibit No. 208, and \$50 conceded by Spring Valley in Exhibit No. 221, leaving as disputed items, \$10,735, which are claimed by the city as proper deductions. Replying to the Spring Valley arguments, pages 1315-1320 of the typewritten transcript, we give the following summary of our reasons for deducting these items:

Storrow's report on Lobos Creek, \$582.90, a non-operative property.

2,000 copies Tuolumne Report, \$231.50, part of opposition to Hetch Hetchy.

Schussler Reports, \$623.00 and \$447.50, publicity, part of opposition to Hetch Hetchy.

Copies Municipal Reports, \$250, payable from fire insurance received on office equipment. Railroad Commission rule does not apply such expenditures to Operating Expense in cases like this.

Maps and Mounting, \$29.75, Engineering Supplies. Railroad Commission C-18.

Improving Pleasanton Property, \$83, California Railroad Commission, "Cost of Fixed Capital," p. 17.

Theft and Shortage, \$106.69. California Railroad Commission, page 31, top, "unusual losses."

Hayes, architectural charges, \$150. California Railroad Commission, "Cost of Fixed Capital," page 17.

Relief Maps, \$250, profile maps, comparing Spring Valley with Tuolumne System, see p. 9087 of record—part of opposition to Hetch Hetchy.

Sign posts, \$64.79 and \$174.42, Cal. R. R. Com., Fixed Capital, page 17.

Hay and Grain, \$42.85. Conceded by City.

Horses and cow, \$899. Cal. R. R. Com. C-18, Sec. D, page 23.

Cement accounts, \$132.00 and \$141.62. Material and Supplies, R. R. Com., Item 9, Page 9.

Lobos Creek Expense, \$100. Non-operative property.

Computing weir measurements, \$600, conceded by city, \$200 claimed part of "Future Water Supply" work.

Transit, \$184. Cal. R. R. Com., C-18, Sec. A, page 23.

Engineers' salaries, duplicate deductions. Restored by City in Exhibit No. 208.

Pipe line studies, \$205.25; Alameda Creek studies, \$150.63; Studies, R. R. over Spring Valley lands, \$368.70. Cal. R. R. Com. Cost of Fixed Capital, page 17. (The Spring Valley has no Suspense Account.)

Iron Plates, Transportation, etc., \$4,538.22, Cal. R. R. Commission, Material and Supplies, Item 9, page 9 (see record, p. 9121, first half of page), and prior reference to this item in this argument.

Undisputed items, \$519.69. Spring Valley Company did not show these in detail.

The Spring Valley Company has failed to show that any of the above are a proper Operating Expense, and the city claims the entire remaining amount as a deduction therefrom.

1 General Salaries.

It appears that the complainant during the years in litigation has failed to charge any of its "general salaries" to capital account, although considerable sums have been expended in purchase of additional real estate, and large construction was undertaken in later years at Calaveras Dam. All of the salaries of the executive officers and assistants were charged directly to Operating Expense. The practice, we submit, is neither in accordance with equity or approved accounting practice. Very generous allowances for overhead expenditure have been made in the valuation of the company's plant by all the engineering witnesses. If those overhead charges include general administration expense, as will be readily ascertained from an examination of the record of the testimony on the subject of overhead, we contend that a percentage of the general administration charges should be charged to capital account and deducted

from the operating expenses. Any other course would be equivalent to permitting the company to earn a return based on the inclusion of these charges in the reproduction value, and at the same time to include them in operation accounts, thus obtaining a double allowance. Mr. Metcalf suggested that the reproduction theory involves the hypothesis that no plant is in existence, and hence no operating charge. My answer to that is that whatever the reproduction method of value involves if followed to this theoretical conclusion there was unquestionably during the years in controversy a plant in existence and in actual operation. Complainant has not rested its case on any theoretical operation charges. It is perfectly content to take every single operation charge they can possibly find and deduct from the gross revenue in arriving at their net return. Merely because many of these lands and structures were carried into the value new by experts rather than by direct reference to the company's ledgers does not eliminate the objection. The duplicate charge is still there whether it be in the form of overhead percentage or a direct charge against the plant account on the ledgers. Of course, so far as Calaveras construction is involved, that has been eliminated by us from consideration as property not in use; but when it does come into use the plaintiff will bring it in to use at its full value, including proper overhead charges, so that there can be no loss from this source. Similarly, the Pleasanton lands, which we have excluded in making up our rating base, shall carry their share of the general overhead on the real estate ledgers, and those charges will affect the prices at which the company will ultimately be willing to sell those lands. In other words, they will get back any amounts that are thus deducted from operation and charged to capital account, but it will be amortized over the life of the investment instead of being charged against the rate-payers of a given year who constitute a small proportion of those who will eventually benefit by the investments. There is ample authority for this procedure in the accounting rules of both the Railroad Commission and the Interstate Commerce Commission.

Under the heading of "Fixed Capital Accounts" (page 17 of Cali-

fornia Railroad Commission), in uniform classification of accounts for water corporations, is found in the following rule:

"The term 'Cost' as used in the texts for fixed capital accounts means the original cost to the corporation. It includes not only the costs of labor, materials and supplies directly employed or consumed in the construction and installation of property classed as fixed capital but also the cost of preliminary plans and surveys and such portion of the expenses for engineering and plant supervision and general expenses as may be chargeable to the fixed capital accounts under an equitable plan for the apportionment of such expenses."

In the Uniform System of Accounts for Electric Railways, prescribed by the Interstate Commerce Commission, Rule 11 provides (page 93):

"When officers or employees give all or a substantial proportion of their time to construction or to addition and betterment work the whole or an equitable proportion of their salaries and their traveling and incidental expenses in connection with such work shall be included in the cost of the work."

As Mr. Bailhache testified (page 9145) other corporations in the city make such deductions and charge to capital accounts. There seems to be no reason why the complainant should not follow this procedure. Probably counsel will differ from us as to the method which Mr. Bailhache used in applying this rule. His testimony on this subject is set forth in his Exhibit No. 125, Vol. 1, page 1, and on the record at page 9143 *et seq.* He took the total operation expenses for all the years in controversy as representing in a mathematical way the volume of business transacted by the company, and added to the total expenditures for capital accounts both land and structural for the same period, which he took as representing the volume of the new construction and betterment work. He then determined that the total charge to permanent improvements thus ascertained bore an average percentage for the entire period of time of 44.7% to the total operating and permanent improvements, and he deducted this percentage of the general executive salaries, as the proper charge to capital account.

With respect to the General Auditor's Office, 10% only was deducted, based on his knowledge of the practice of other companies in the city. Counsel has sought to discredit this method through the testimony of Mr. Eastman (9334-9336), showing that less than 10% of the time of the chief executive was given to new construction matters. I suggest to your Honor that the time expended is not a proper basis of apportionment. The chief executive may and in all probability does render infinitely more valuable service to his company in passing upon matters of large policy, such as would fall to the executive in the determination of new construction policies and the supervision of the executive of those policies than in the supervision of ordinary operating details. It would seem that the value of his services bore some relation to the value of the work undertaken, rather than to the mere amount of time that he expends in consultation or supervision. It would seem also that the total amount of operating expenses has a very clear relation to the volume of the business of operating the company's plant. It appears that Mr. Schussler's salary charged in General Salaries under "chief and consulting engineer," pertained almost exclusively to new construction work, and investigation preliminary thereto. Mr. Bailhache's deduction of 90% of his salary as being a capital charge therefore seems entirely proper, and is based on correct accounting practice.

It is shown that the Pacific Gas & Electric Company have been charging a portion of their Executive Salaries into Capital Account through Engineering and Supervision. They began this in a modest way, January 1, 1915, by charging 5%.

Counsel in his argument, page 1321, attempts to show that the testimony of Bailhache (9144-45 of record) quoting 10% deduction from salaries was in reference to all general salary deductions, but examination of the same will show that he referred only to the Auditing Department.

On page 1323 of his argument complainant's counsel quotes from Eastman's testimony, showing that a portion of chief engineer's salary was charged into new construction. The city makes no deduction from Operating Expenses for the salary of the chief en-

gineer which is carried in the engineering department by the Spring Valley Company, and of which they charge a proportion to Capital Account. As shown heretofore it is the salary account of Mr. Schusler only, (\$12,000 per annum) in General Salaries, of which city claims 90% should be a capital charge, or eliminated, and in fact none of it should be an Operating Expense charge.

In argument, pages 1326-27 of record, counsel for Spring Valley asked why city did not consider taxes in reaching a percentage basis for deduction of general salaries, to which we reply that executive officers do not fix tax assessments or rates paid, and it was not a question of how much money could be spent for taxes, but it was a question of how much could be spent for Improvements or Operating Expenses. The same is true of Interest charges, and other fixed charges. Rehabilitation was not considered, a special assessment on the stockholders having covered that, and no further effort being necessary to provide for this cost. The problems of financing the company are taken into consideration in the proportionate amount deducted by the city as a capital charge,—the capital being raised to make additions to the company property—while the revenue as it was shown elsewhere was sufficient to meet Operating Expenses, Taxes and other charges.

It is submitted that the deductions made by city under General Salaries are entirely proper; are made upon a reasonable basis; are sustained by correct accounting practice, and that they should be allowed.

m. Hydrographic Work.

Of the amount under this head it is shown that \$5,400.68 was deducted by the city for years 1911-12. That this work was done for "The Future Water Supply of San Francisco" will be seen by reference to deductions, pages 56-59, Exhibit 125, Vol. E. "The Future Water Supply of San Francisco" bears the date of October 31, 1912, and the last of these charges on Spring Valley accounts for that fiscal year bears the date of June, 1912. The Spring Valley attempted to confuse this in argument by quoting Bailhache's reply (page 1334). Examination of his reply will show that he stated there the work was done for the book on water supply of San

Francisco, a work used primarily in opposition to the Hetch Hetchy project.

The remaining amount \$2,527.57, was shown in 1912-13 (see Vol. f, pages 72 and 73, Exhibit No. 125). The company attempts to show by Eastman's testimony that this was done in response to a telegram from John R. Freeman, requesting it. The date of Mr. Freeman's telegram was Nov. 12, 1912, and the hydrographic work objected to by the city in that year was done prior to the receipt of Mr. Freeman's telegram.

Mr. Eastman (9337) said that practically all of this work was done to meet litigation or to make a showing before the Secretary of the Interior in the Hetch Hetchy fight. It is therefore contended that the entire amount is a proper deduction and is not an operating expense.

n. Picnics, Etc.

The entire amount was restored by the city in Exhibit No. 208, and there is no contention regarding the same.

o. Advertising, Pamphlets, Etc.

These deductions by city in Exhibit No. 176, page 9, amounted to \$6,500. On pages 9449-50 of record, testimony of Spring Valley witnesses showed the principal items to have been as follows: \$1,690 in 1907-08, publishing statement to Supervisors of the company's offer to sell to the city.

\$324 in 1908-09, publishing a statement in Chronicle of the company's development and proposed development.

\$3,200 in 1910-11 for 20,000 pamphlets for publicity purpose, containing pictures of the Spring Valley properties and general descriptions of same.

\$884 in 1912-13, publishing reports to Supervisors of the Spring Valley Negotiating Committee.

These items making a total of \$6,100, all being either attempts to sell to the city, or to block the Hetch Hetchy grant, are not a part of the operating expenses of Spring Valley, and are claimed as proper deductions from operating expense.

p. J. G. White Appraisal.

With respect to the J. G. White appraisal, on page 9180 of the record, I made a suggestion that if the inventory was necessary for the company, it would be a proper capital charge as part of the company's records, and should be amortized over a number of years and not charged to consumers in a given year. The appraisal, however, could only have reference to rate litigation then pending, as the condemnation suit had not even been thought of, and, moreover, it was discarded even for that purpose, and has not even been introduced in these cases. I fail to see on what possible theory complainant can justify the cost of this appraisal. If they will furnish your Honor any intelligent basis for segregating the cost of the inventory I am willing to concede its inclusion in operating account as an amortization over a period of years, including the future as well as the past.

q. Legal Expenses—General.

This account was arranged by counsel (9246) by segregating the legal fees of McCutchen, Olney and Willard (\$78,692.65) to general legal expense. This amount was partly restored by the city in Exhibit 208, and the remainder, amounting to \$60,487.79, is restored in the city's final statement of revenue and expense (Exhibit No. 235). This was done by agreement, the city still claiming the exclusion of the remaining items of the \$150,942.65—namely, amounts chargeable to water rate suit, bills for hearings before Secretary of Interior and Lobos Creek legal expense.

Discussion concerning these latter items appears under Rate Litigation, Water Rate Suits, etc.

r. Rate Litigation.

Mr. Bailhache has deducted all of the expenditures of the company which arose out of rate litigation which has been in progress for so many years between the city and the company. This question was argued to some extent at the time of the hearing, but I shall proceed to summarize here those arguments which I deem to be conclusive against the inclusion of this expense in operating

accounts for the purpose of this hearing. In the first place, it seems to me entirely contrary to public policy to require a rate-making body in fixing rates to make them high enough to include such special allowances designed to cover the cost of an attack by the company in the Federal Court upon the validity of those very rates. Such a ruling by the Court would be a clear reflection upon the dignity and authority of rate-making bodies, and what is more important, would tend to encourage this type of litigation, whether it was justified or not. It is all very well for counsel to say that the test should be that the company is acting in good faith. We contend just as strongly that the Board of Supervisors acted in good faith in fixing these rates and that in their estimation the rates in question would and do yield complainant a fair rate of return. The question of whether these attacks are brought in good faith or not is in the first place not susceptible of determination, and in the second place has no bearing on the subject. The inclusion or exclusion can only become critical if the rates yield something near the margin of a fair return. If they yield a fair return, the company has no right to render them confiscatory by simply commencing court procedure at the expense of the rate-payers. I would not for a moment deprive counsel or complainant of the right to defend themselves or to attack these rates if they believed them to be confiscatory; but I do say that the expense should be borne by the stockholders of the complainant and not by the rate-payers of the city. There is an alternative which occurs to me which I think would be more generous to the plaintiff, and is based on this line of reasoning,—when plaintiff obtained the temporary restraining order against these rates it was only required to make an ex parte showing as to their alleged confiscatory character. It could well have included in its affidavits a showing of the reasonable amount which the proposed litigation would cost, and that showing might very well have been taken into account by the Court when it fixed the limit of the rates which plaintiff might charge pending trial of the case. If the rates were eventually found to be confiscatory, then the amount of this expense would be taken care of in the excess return which complainant would receive upon entry of the

decree. If plaintiff failed to take this into account in its preliminary affidavit, I cannot see that either the city or the Board of Supervisors or the rate-payers have been at fault. Under no circumstances does it seem a reasonable or equitable proceeding to take these expenses into account in determining whether water rates were in the first instance confiscatory. It imposes an unfair burden on the rate-payers, and, as I stated, is contrary to public policy; but, if the complainant is successful, and in that manner justifies the commencement of this litigation, then it can be reimbursed for these expenses in the return of the excess money impounded by order of the Court. If counsel did not take these expenses into account in his request for a preliminary restraining order, that is clearly his own fault, not ours. There have been some rulings upon the propriety of including these litigation expenses, to which I now refer your Honor.

Judge Farrington said in his final decision in the 1903 case, referring to the exclusion of the expenses of the water suit, which amounted in that case to \$13,000:

“Proper costs will be awarded or apportioned in due time by the Court. There is no reason why rate-payers should be compelled to bear the entire burden of this litigation whether they win or lose.”

Judge Van Fleet said in the San Diego Water case—50 Pacific, 633, 638:

“It will be the duty of the Court on a retrial to allow no item of expenditure which is not satisfactorily shown to be an actual and proper charge, in the actual conduct of the business of supplying water; and when legal or other general expenses are claimed they must be shown to have had proper relation to that business.”

Counsel for Spring Valley in argument (1347) refers to rule of California Railroad Commission, E-37, p. 42, as authority for charging rate litigation to operating expense.

This applies to Railroad Commission expense in proceedings before that Commission regarding petitions, etc., but gives no

authority to incur costs and expenses of extraordinary character such as have been shown in this case, and entirely outside of any proceedings before that Commission.

s. Condemnation Suit Expenses.

I think that the company should be equitably entitled to carry as an operation expense the costs of the condemnation suit which was brought against it by the city. The volume of the expenses, however, should be limited to those which were properly a part of that litigation. Mr. Eastman's apportionment of 60% for work which was common to condemnation suit and rate litigation as being chargeable to condemnation suit seems to me the reverse of what is warranted by history today. The record shows that complainant has not even filed an answer in the condemnation suit, and that no steps have been taken by the city to prosecute it further than filing the complaint. On the other hand, the rate suits were at issue in 1913, and were assigned to your Honor for trial during the following year. These considerations seem to dictate that that class of expense should be prorated more heavily to rate litigation than to the condemnation suit. The heaviest part of the expense, as shown on page 9286 in the tabulation furnished by Mr. Muhlner, appears to be made up of the salaries of the engineering department, fees and expenses of engineers and realty experts. I see no reason why any of this expense should be charged to condemnation suit in view of the actual outcome of the situation. The only result of the work of these men has been applied to the suits which are here on trial. I have repeatedly stated, and I think my statement should be given some weight as coming from the City Attorney's office, that there is no present intention of trying the condemnation suit that was filed. When the company's properties are condemned it will be at a future date upon a valuation made by the Railroad Commission, and a new suit will be commenced in which this valuation will be set up in the complaint. If that procedure is followed, it might be advisable to take this condemnation expense which has been of no benefit to the company to date and apply it as a part of the costs of that litigation. Another consideration which seems to me

to apply to both condemnation suit and litigation, is that the expenses of this litigation have been all out of proportion to reason. The cost to the city of the preparation and trial of these cases has only been a fraction of the company's expenditures as shown by their books, and as stated at one time or another by counsel in the record. It is a very serious problem whether rate-payers should be compelled to bear the entire cost of such elaborate and expensive presentation. It has nothing to do with the water supply, and it has solely to do with the protection of the stockholders' investment. The stockholders are the only parties directly or indirectly interested. If they desire their representatives on the Board of Directors of the Spring Valley Water Company to conduct litigation in their behalf along these lines, that, of course, is their privilege and I offer no criticism, but when they attempt to charge the entire burden of it to water-rate payers as an operation expense which must be allowed before we can even consider the fairness of the net return from rates, I feel that a very great injustice is being worked on these rate-payers, and that it would be altogether equitable to charge a large part of this expense to the corporate surplus and not to operation accounts. See Calif. R. R. Com., page 31, Item 114, Section F. The rate litigation expenses, I have already stated on good authority, should be entirely deducted for reasons of public policy, and the argument which I have just made adds another reason for this deduction. So far as the condemnation suit is concerned, the stockholders are the only people who are interested in seeing that a high valuation is obtained for their plant. If they desire to employ the most expensive talent in the country with a view to such valuation, they should bear a part at least of that expense. Some rule of equitable reason should be applied. I am satisfied that Mr. Eastman's apportionment of 60% of the entire cost of the condemnation suit does not comply with that rule. I shall be entirely satisfied to let the matter rest on the basis of an equitable apportionment made by your Honor after due consideration of the facts, and am satisfied that you will find a much lower percentage should be charged to the condemnation suit.

Counsel for the company quotes testimony showing that there

was no arbitrary separation of rate suit and condemnation expense prior to 1912-13, but it was all charged to the rate suits prior to that time.

This is quite evident for the reason that there were no condemnation expenses prior to that time.

t. Cost of Opposition to Hetch Hetchy Grant.

During the time the city of San Francisco was conducting its application before the Secretary of the Interior and before Congress for the grant of privileges in the Hetch Hetchy Valley and the Yosemite National Park necessary to the construction of a municipal water supply, the Spring Valley Water Company saw fit to undertake a very vigorous opposition to the granting of the city's application. This opposition was manifest in several forms, but principally by publicity work conducted in this case through lectures by Mr. Schussler, advertising pamphlets and other matters destined to influence the opinion of the public against the Hetch Hetchy project, and by a very vigorous fight conducted at Washington through legal counsel and supported by the opinions of the various experts whom the company engaged to make investigations for the purpose. Counsel seeks to justify this as an operation expense by stating that the company was compelled to defend itself. So far as this record shows, this Hetch Hetchy application was not an application in which the Spring Valley Company was a party at all. Having demonstrated for many years their inability or their disinclination to furnish the city of San Francisco and its inhabitants with a proper supply of water except on the most arbitrary terms, the city determined by an overwhelming vote of its electorate to acquire its own supply from Sierra sources. If there was anything illegal or improper in this application by the city, counsel has failed to show where the illegality lay. There was certainly nothing which compelled the company to take action in the matter unless they felt that it would be desirable for them to exclude municipal competition by any means that they might be able to use. If the latter is the only cause for their action, it is clearly one which has to do with the stockholders of the company and not with the rate-payers of San Francisco. The

bitter opposition which the company conducted for some time, until it apparently found that it was unavailing, did not serve the water supply of San Francisco in any way. It was designed to cripple the city's efforts to obtain a mountain supply and to leave the city entirely at the mercy of the complainant and complainant's demands for exorbitant rates, in order to obtain drinking water for its inhabitants. It is bad enough that they made the fight that they did. Now they come back and coolly propose to charge against the rate-payers of San Francisco the cost of this fight, with a view to rendering confiscatory, if possible, the water rates which were fixed by the regulating body. Such a procedure I submit is authorized or justified neither by principles of law or equity. These expenditures had nothing to do with supplying water to San Francisco consumers, nothing to do with the construction or the maintenance or replacement of structures necessary to such a supply, nothing to do with the financing of new construction, and are under no theory a justifiable inclusion in operating or capital accounts, but are solely chargeable to miscellaneous deductions from surplus (see Cal. R. R. Com., p. 31, Item 114, Sections A and G) accounts.

There are certain items of these expenditures which were detailed by Mr. Eastman in Exhibit No. 218. The evidence tends to show that a part of the scientific information which was gathered during investigations preliminary to this battle in Washington is of permanent value to the company. It had to do exclusively with the future water supply of San Francisco, and deals with various sources which the company claimed that it could develop. Mr. Eastman has segregated these charges on the basis of certain items being chargeable directly to the fight in Washington, and certain other items chargeable to the permanent records of the company. I am willing now to accept his segregation so far as the amounts go, but with respect to the second class of items would make this claim which I think is justified.

First—Items which are charged directly to the Hetch Hetchy fight should be entirely eliminated from operation accounts.

Second—That items which represent permanent value to the company can only be properly classified as preliminary expenses to

the development of future supplies, and should all be added to the capital account and taken out of operation. If Mr. Eastman means what he says when he states that these investigations were of permanent value, they should only be so in connection with actual development of new sources, and are most properly chargeable as a part of the overhead incidental to such development.

On Record, page 9070, Muhlner says the item shown in Exhibit 124, last page, Revenue Expenditures, "Cost of Presenting Company's Case, \$20,800.82," and which was deducted by the complainant from net operating revenue in the fiscal year 1908-9, "represents the company's expense at their work in Washington on the various hearings before the Secretary of the Interior." The city did not include this in their accounts, it not being a part of operating expense or taxes, and it was not considered to figure in any way as a deduction from operating revenue.

u. Pumps—Maintenance and Alteration.

The amount of this deduction was small, being \$1,390.75, for the period involved. In 1910-11 the amount was \$752.25, and the principal items appear to be at Belmont pumps. These are shown on page 15, Vol. D, Ex. 125. In 1912-13 the amount was \$582.75. The principal items appear on page 15, Vol. F, Ex. 125. All of these deductions are claimed as correct under R. R. Com. Classification C-7, Pumping Equipment, page 20.

v. Bookkeeping Department.

This amount is analogous to other rate-suit expense. The figures agreed upon as applicable to this charge are shown in Ex. 208, Table B, page 1, in line "Admitted Amounts," the remainder having been restored. The city claims the full amount of the agreed amounts in connection with rate-suit expenses.

w. Repairs, Maintenance and Operation.

which should read Equipment, Material and Supplies, and Replacement. This segregation, page 9, Ex. 176, shows a total of \$53,-877.93, of which the Spring Valley Company conceded \$8,967.70, and the city restored \$363.54, leaving a remainder, claimed by city as

proper deductions, of \$43,546.69. This amount, by analysis, has been found to consist of the following items: Equipment and tools, \$600.48; replacement charges (includes the \$7,000 item at Sunol), \$14,153.78; material and supplies, \$1,256.18; addition and betterments, general, \$13,906.07; Sunol filter beds, improvements, \$2,426.31; Pleasanton wells (includes item of \$6,550.22, lowering of pump), total, \$8,086.46; Alameda Creek improvements, \$1,735.60; land department improvements, \$528; miscellaneous items (possibly most of these operating expense), \$650.31, and error in footings by Spring Valley, \$203.50. All of the above, except the last two items, are proper deductions from operating expenses, as will be seen by reference to Calif. R. R. Com. Classification, under Capital Accounts, pp. 17-23.

As to the testimony concerning these deductions, attention is drawn to admissions made by Metcalf and Muhlner (pp. 9268-9, Record), that practically all small replacement has been charged into operating expense, and in this account it is also shown that a large replacement item of \$7,000 was also charged to operating, while an item of lowering pumps at Pleasanton to make them available for use \$6,550, being a betterment, consequently a capital charge, was also charged to operating. Mr. Metcalf's allusion to "current practice," (p. 9266, Record) and to which he alludes at various points in this trial, means simply that it had been current practice for many years for corporate bodies to charge all replacement into operating expense. This former custom they now seek to justify whenever necessary by reference to "current practice." They also claim a large depreciation reserve account for this very purpose. Muhlner, at bottom of page 9311, record, gives an indication of Spring Valley's method of placing construction items in operating expenses. He explains the inclusion of an amount of \$521 deducted by the city as follows: "These are made up of a number of items that are comparatively small in themselves; they are construction items; but from the fact that they are small we charge them to maintenance."

The rule of the California Railroad Commission referred to by

counsel for Spring Valley, page 1352, concerns minor repairs, and not capital additions and large replacement items as shown.

Metcalf's argument quoted by Spring Valley counsel, page 1354-5, is plausible. He says, "From the point of view of the rate-payer it simply means that he has simply paid somewhat more into the depreciation fund, he has greater security, or the corporation has greater security, which results in stability, and in the corporation being able to borrow money at somewhat lower rate."

It cannot be seen how this is going to benefit the rate-payer. Adding to the operating expense is making for a higher rate of return for the company, but it makes a higher cost to the rate-payer, and, admittedly, is better for the corporation. Again, in argument, p. 1356, speaking of the lowering of Pleasanton pumps, it is admitted that the efficiency was increased, consequently this is a betterment which should not be charged to operating expense.

Spring Valley counsel also refers to certain credits overlooked by Bailhache (p. 1356) which were restored in Ex. 208.

x. Buildings.

Regarding this segregation, both the city and the Spring Valley Company gave the Master detailed information, from which he stated he would draw his own conclusions, and from which he can see that the city deductions under this head, with possible exceptions for alterations of company office building, are correct.

y. Telephones.

Telephone expenses were settled by stipulation (see Ex. 179), the city restoring \$1,007.40 in Ex. 208, \$2,000 being stipulated as capital account, and \$16,141.12, which should be charged to Spring Valley replacement account, the last two items not being operating expense.

z. Change of Pipe Line Location.

This is another class of items from which deduction has been made by Mr. Bailhache, and represents the cost of moving some of the company's pipe lines from one location to another. Mr. Elliott explains that that moving was done for the purpose of lessening

maintenance and repair costs and putting the pipe lines in a better location. It is submitted that these items are strictly capital or replacement charges. If the effect of the removal is to add to the life of the existing structure at its existing location, this is a replacement charge. If it is a betterment to the structure, it is a capital charge. It must be one of the two, or it would not be made. Some of those items run as high as \$2,250 (9212) and \$1,179 (9216). A number of them are less than \$200, and Mr. Muhlner quotes the right to charge it as operation under his interpretation of the Interstate Commerce rule (p. 91), Elect. Ry. Classification. I will call your Honor's attention to the reading of this rule:

"If the total cost of additions and betterments to any class of equipment or any class of structures, under a general plan, considered as a whole, is less than \$200, the option may be exercised of charging the amount expended to the appropriate account in operating expenses. This is not to be construed as authorizing the parceling of expenditures in order to bring them within this limit."

It will be seen that this rule applies only to betterments made under a general plan, considered as a whole, and could scarcely be applied to the betterments of an existing structure, the cost of which is many times that amount.

aa. Experimental Work.

This was shown to be experimental work at Lake Honda reservoir of no value and not used, consequently a charge against corporate surplus. Matters of this sort might run into the thousands of dollars, and swell operating expense to large amounts. If used and useful it would become capital charge under Railroad Commission cost of fixed capital, page 17, but otherwise it cannot be considered other than a charge to surplus.

bb. Non-Operating Accounts.

These accounts were all restored by the city in Ex. 208. In the last exhibit filed by the city, No. 235, is shown the amounts conceded by Spring Valley under this head to be the correct amounts charge-

able to each of the properties which the city claims to be not in use, and all of these amounts shown in Exhibit 235 are claimed by the city as deductions from operating expense because they are incidental to property not used or useful.

cc. Supplies, Operating.

This account is left to the discretion of the Master, who indicated that he would check the amounts.

dd. Miscellaneous Eliminations.

This is the last item on page 10, Ex. 176, the amount of which was corrected by the Spring Valley Company to \$99,443.42. Analysis of this segregation developed the following: The city restored \$15,493.57, the company conceded \$34,407.62 and transferred \$7,408.70 to capital account, leaving a remainder of \$49,542.25. Of this \$9,738.78 was for engineer salaries in connection with "Future Water Supply of San Francisco," \$93.57 was expense of paying coupon interest, \$24,295.51 was for reports on Spring Valley Water Co. properties in 1912-13, being mostly engineering salaries and expense of printing "Future Water Supply of San Francisco"; \$1,059.23 was for various items of land and capital account charges, \$12,992.19 was for expenses in opposing the city in Hetch Hetchy matters, etc. (some of the principal items being Schussler's lectures, etc., \$2,316.28; Relief Maps, \$3,666.10; Britton & Rey expense, Washington, \$2,528.58): Errors in shorts and cash were \$383.07 and miscellaneous items, copies of President's report, etc., \$979.90. Referring to the item of \$24,295.51, Mr. Muhlner (p. 9133, of Record), says this was for "Reports compiled by Spring Valley on its properties for the purpose of presenting its case in Washington," and that it had nothing to do with the condemnation case, nor with the account: "Presenting company's case" in 1908-9, amounting to \$20,800. The entire amount of miscellaneous eliminations is claimed as a deduction by the city, with possible exception of the small items of miscellaneous amounting to \$979.90.

ee. Miscellaneous Notes From Testimony.

On page 9131 items of telegrams to Mr. Bourn while abroad, amounting to \$1,531.31, were questioned, they being a part of miscellaneous eliminations, and taken out as pertaining to fight against the Hetch Hetchy. Mr. Muhlner said he would look this up and report, but evidently failed to do so.

On page 9108 Muhlner designated corporate surplus as part of operating expense account, and on page 9109 said, "It makes no difference whether charged in operating expense or as a debit to profit and loss." This statement is misleading in that corporate surplus is not a part of operating expense; also, if a charge is made into operating expense it cuts down the net revenue applicable in rate cases, but if charged to corporate surplus it does not.

ff. Reference to Optional Rule of \$200. Interstate Com. Com.

All the way through, in Muhlner's testimony, and either directly stated by him, or brought out by counsel, was a series of statements similar to that appearing on page 9091, viz., "The Interstate Commerce Commission provides this: that the accounting corporation shall have the discretion of applying all expenditures of \$200 or less to other operating expenses, or to new construction, as it sees fit."

This rule is found on page 91, Uniform System of Accounts for Electric Railways, presented by the Interstate Commerce Commission, Issue of 1914, and it applies only to additions and betterments, and not to all expenditures.

The Interstate Commerce Commission formerly applied this rule to steam and electric railroads to cover small additions and betterments, it becoming effective for steam roads in 1910 and for electric roads in 1914, but owing to the misinterpretation and abuse of the privilege it was withdrawn July 1, 1915. A copy of the order affecting electric roads is filed herewith, and is similar to the order affecting steam roads, which reads as follows: "It is ordered that, effective July 1, 1915, that Par. 2, Sec. 2, GENERAL INSTRUCTIONS FOR CLASSIFICATION OF INVESTMENT IN ROAD AND EQUIPMENT OF STEAM ROADS, ISSUE OF 1914, be cancelled and that the option allowed to carriers of charging certain

costs of additions and betterments to operating expense as therein described be withdrawn." The order withdrawing above rule is on file at office of the Interstate Commerce Commission, Wells Fargo Bldg., this city.

Muhlner admitted (Record, 9091) that no authority had been given by California State Railroad Commission to water companies to apply such methods, consequently no authority exists for the application of this rule as a discretionary matter in their accounting practice, and of the inclusion of capital and replacement items in their operating expense.

gg. Review.

The complainant has admitted improper charges in their operating accounts amounting to \$89,242.10, as shown on page C of Exhibit 221, which, with the amounts in Exhibit 179 chargeable to replacements and renewals, makes a total of \$115,123.12 wrongly charged by them as shown in their own and joint exhibits. Adding the doubtful accounts shown by them on page 5, Exhibit 201, makes an aggregate of \$300,293.12, admitted improper and doubtful accounts in their operating expense accounts.

It has also been shown in the foregoing that the Spring Valley Company has not kept its accounts in accordance with the classifications of the California Railroad Commission or correct accounting methods, but for years have been carrying into operating expense large amounts properly chargeable to capital or to depreciation reserve, and that a further burden has been placed on the rate-payers by charging into operating expense account expenses incurred by the company's own acts in fighting ordinance rates and attempting to block the Hetch Hetchy project. These expenses being for the benefit of the Spring Valley stockholders, should be paid for by them and not by the water consumers of San Francisco. It was not expected that the company would admit all of the city's contentions and deductions, but enough has been shown to warrant the deduction from the Spring Valley operating expense of the entire remaining amounts claimed by the city, and thereby reducing their claimed operating and tax accounts to the final figures shown in Exhibit 235.

4. General Considerations.

The foregoing discussion covers the reasons for the city's deduction of the principal classification of operating items. More items might be excluded on the general proposition that deductions from operating expense should be properly made under any intelligent theory of rate-making by consideration of the operating expenses of the company during the years in controversy. I have had them set forth on a schedule marked Table 28. The figures shown on this schedule are taken from Mr. Muhlner's Exhibit No. 124, which shows the amounts originally charged by the company to the various accounts and the totals for each year. Your Honor will note that total operating expenses in 1907-08 were \$639,000 and slightly more in the following fiscal year; jumped by \$100,000 during the year 1909-10; dropped back \$70,000 in 1910-11; remained at nearly that figure for the year 1911-12; jumped \$100,000 in the year 1912-13; and \$50,000 more in the year 1913-14; then dropped back \$70,000 in 1914-15. This showing indicates that during the years 1909-10 and 1912-13, 1913-14 and 1914-15 operating expenses have been abnormally high. More light upon this abnormal showing may be gleaned from the remaining figures on this schedule. It does not arise from pumping expenses, as your Honor can observe by noting the percentages the pumping expense bears to the total operating expenses for the various years. The percentage dropped during the year 1912-13, which is one of the highest years to which I refer for total operating expense, and with the exception of 1913-14, the pumping costs have not fluctuated very widely, being only \$17,000 more in 1914-15 than in 1907-08. The last half of 1913 was, of course, a very dry period, and I presume that every pump the company had was working. This may account for 30 or 40 thousand of the excess over the previous years.

The law expense account has been very high during the years to which I refer as being years of extraordinary high operating expense. The same is true of rate litigation expenses.

General expenses advanced by leaps and bounds in the last four years, having by 1911-12 reached nearly three times the amount

TABLE 28.

TOTAL OPERATING EXPENSES, SPRING VALLEY WATER COMPANY, AND TOTAL PUMPING COSTS (From Spring Valley Exhibit 124, page 7),
SHOWING THAT GREAT VARIATIONS IN OPERATING EXPENSE ARE NOT CAUSED BY INCREASED PUMPING EXPENSE. ALSO COM-
PARISON OF OTHER EXPENSE ITEMS WITH TOTAL OPERATING EXPENSE.

	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15	REMARKS:
Central Pumps.....					7,193.77	19,514.05	18,830.49	22,019.90	
City Pumps.....	32,712.08	31,662.22	33,680.73	29,428.08	29,301.94	31,560.41	33,713.47	30,568.69	
Black Point Pumps.....	19,275.26	20,343.82	22,929.12	17,124.92	15,788.74	16,580.11	17,237.78	17,272.86	
Clarendon Heights Pumps.....	21,415.40	20,490.02	19,881.04	16,806.29	15,549.96	16,155.24	16,742.32	17,278.82	
Piedita Valley Pumps.....	26,554.25	20,821.56	18,429.10	14,398.18	12,479.96	10,104.14	11,083.43	12,695.40	
Ocean View Pumps.....	19,603.42	20,606.05	19,233.19	16,443.40	10,319.41	737.93	589.91	173.89	
Belmont Pumps.....	48,577.00	36,923.31	45,002.19	39,405.73	40,732.60	35,876.05	39,625.54	51,193.04	
Millbrae Pumps.....	1,228.81	2,651.93	2,014.79	607.75	4,951.88	16,391.50	10,647.23	3,860.99	
Crystal Springs Pumps.....	1,698.41	105.12	22.61			6.62	28,339.52	1,002.38	
Ravenswood Pumps.....						4,580.74	12,712.57	18,476.42	
Pleasanton Pumps.....							13,195.43	13,623.25	
TOTAL PUMP EXPENSE.....	171,064.63	153,604.03	161,192.77	134,214.35	136,301.26	151,506.79	202,717.69	188,165.64	
Pump Exp. per cent. of Operating Ex- pense.....	26.76	23.83	21.44	19.55	19.65	18.83	23.69	23.87	
Total Operating Expense (Spring Valley Gross).....	639,233.13	644,624.25	751,817.76	686,673.30	693,647.95	804,755.02	855,721.76	788,121.84	
Law Expense, General.....	11,690.18	26,170.69	31,665.85	4,488.44	3,592.00	37,135.10	14,719.48	32,159.20	
Law Exp. per cent. of Operating Ex- pense.....	1.83	4.06	4.21	.65	.52	4.62	1.72	4.08	Shows abnormal increase in Law Expense in certain years.
Water Rate Suit Expense.....	3,434.12	22,380.69	14,956.50	32,313.83	10,846.49	11,248.43	39,075.94	16,927.13	
Water Rate Suit Expense per cent. of Operating Expense.....	.54	3.47	1.99	4.72	1.56	1.4	4.57	2.15	Shows percentage of Water Rate Suit Exp. to oper- ating expense.
General Expense.....	31,037.25	40,689.45	53,389.64	53,734.75	91,029.85	77,710.28	63,161.90	67,212.61	
General Exp. per cent. of Operating Ex- pense.....	4.86	6.31	7.1	7.83	13.12	9.66	7.38	8.53	Shows General Expense Account has about doubled and in some years tripled, the per cent. increase in 8 yrs. being 116.6%.
General Salaries.....	38,499.84	14,395.03	59,156.04	68,179.75	71,051.02	70,625.06	68,805.70	69,111.52	
General Salaries per cent. of Operating Expense.....	6.02	6.89	7.87	9.93	10.24	8.78	8.04	8.77	General Salaries in 1914-15 increased over 1907-08 in gross amount \$30,611.68, which is an increase of 79.5%.
Engineering Dept.....	26,234.50	23,663.62	7,236.74	18,450.40	16,910.11	52,869.65	11,484.26	18,195.33	
Engineering Dept. per cent. of Operat- ing Expense.....	5.67	3.67	.96	2.69	2.44	6.57	1.34	2.31	The Engineering Expense in Connection with the S. V. book, "The Future Water Supply of S. F.," is reflected in the cost shown in 1912-13, of which \$40,900.00 was charged from July to December, 1912.

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TABLE 29.

TOTAL OPERATING EXPENSES OF SPRING VALLEY WATER COMPANY, FROM THEIR EXHIBIT NO. 124, PAGE 7, SEPARATING THE SAME INTO TWO DIVISIONS, THE FIRST COMPRISING 37 ITEMS OF MAINTENANCE AND REPAIRS, AND THE SECOND COMPRISING 23 ITEMS OF ADMINISTRATIVE AND EXPENSE ACCOUNTS; ALSO SHOWING PROPORTION EACH DIVISION BEARS TO THE TOTAL OPERATING EXPENSES.

	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Total Operating Expense by Fiscal Years.....	639,233.13	644,624.25	751,817.76	686,673.30	693,647.95	804,755.02	855,721.76	768,121.84
Total amount of first 37 items of Maintenance & Repair Accounts	379,966.62	313,693.36	356,503.83	309,480.45	289,435.48	309,374.01	337,991.65	332,407.94
Per cent. of Maintenance & Repairs to total Operating Expense	59.442	48.663	47.419	45.07	41.73	34.443	39.95	42.175
Total amount of last 23 items of Administrative & Expense Accounts	259,266.51	330,930.89	395,313.93	377,192.85	404,212.47	495,381.01	517,730.11	455,713.90
Per Cent. of Administrative & Expense to Total Operating Expense	40.558	51.337	52.581	54.93	58.27	61.557	60.05	57.825

From the above table it is shown that the Cost of Maintenance and Repair accounts in Fiscal Year 1914-15 were \$47,558.68 less than in the Fiscal Year 1907-08; also that the percentage of Maintenance and Repair accounts have gone steadily down from over 59 per cent. of all Operating Expense in 1907-08 to about 42 per cent. in 1914-15, a reduction of over 30 per cent. from 1907-08.

On the other hand, the Administrative and Expense accounts which were only 40.5 per cent of total Operating Expense in 1907-08, have climbed up to nearly 58 per cent. in 1914-15, and reached as high as 61.5 per cent. in 1912-13, and in 1914-15 had increased over 1907-08 over 30 per cent.

CONCLUSION:

The Spring Valley are charging less into Maintenance and Repair account than they were 8 years ago, but their Administrative and Expense accounts have abnormally increased, now being greatly in excess of Maintenance and Repair accounts, and in consequence are responsible for the wide variations and great increase in Operating Expenses.

COMPARISON OF ORIGINAL DEDUCTIONS, EXHIBIT 125, FROM OPERATING EXPENSES.

Total Original deductions, Exhibit No. 125.....	22,094.64	84,541.29	156,641.02	130,165.03	148,286.27	191,260.33	188,875.83	133,355.86
From 37 Maintenance & Repair Accounts.....	1,287.19	6,069.01	45,104.20	26,499.31	26,685.14	15,866.14	7,459.13	7,199.53
Per Cent. of total original deductions, Ex. 125.....	5.83	7.18	28.8	26.5	18.	8.3	3.95	5.40
From 23 Administrative & Expense Accounts.....	20,807.45	78,472.28	121,536.82	103,665.71	121,601.13	175,394.19	181,416.70	126,156.33
Per Cent. of total original deductions, Ex. 125.....	94.17	92.82	71.2	73.5	82.	91.7	96.05	94.60

Shows the deductions practically all came out of Administrative and Expense except in years 1909-10, 1910-11 and 1911-12.

in 1907-08, and it still remains over twice what it was in the year 1907-08, having increased over 116 per cent. The percentage of general expense, compared with total operating expense, has increased from 4.86 to 8.53 in eight years. General expense is a convenient place to cover items of all classes, and a large amount of the city's deductions came from this division of operating expense. General salaries also show a very large increase, having almost doubled in the eight-year period involved in this case, registering an increase of almost 80 per cent. Engineering department expense shows during the abnormal years the effect of rate suits, also a large part of the costs of "The Future Water Supply of San Francisco."

There is also shown in Comparative Table 29 the amount in operating expense of the first 37 items comprising maintenance and repair, which makes the remarkable showing of a smaller amount of operating expense in the year 1914-15 than in 1907-08, while the last 23 items of operating expense, being administrative and expense items, are almost twice the amount in 1914-15 they were in 1907-08. The percentage of the first line of 37 items has gone steadily down, while the second list of 23 items has made a great advance, thus showing conclusively just where the operating expense account of the Spring Valley Water Co. has increased.

I therefore conclude from these schedules that very abnormal operating expenses have been incurred by the Spring Valley Water Co. under the heading of Law Expense, Water-Rate Suit Expense, General Expense, and various Administrative Expense items, and that these accounts are largely responsible for the excessively high gross operating expenses. These accounts, of course, have the least to do with the cost of delivering water to consumers of any of the company's expense accounts, and more strength is added to the contention that if the company had not embarked in this period of very expensive litigation and opposition to the city in Hetch Hetchy matter, a much higher return would be shown as the result of their increasing gross revenue.

Reference to the gross revenue account of the company shows that during the first four years involved here the revenue was

between \$2,000,000 and \$2,800,000 per year. In 1911 and 1912 they jumped to over \$3,000,000, and by 1914-15 had advanced to \$3,404,000, an increase of 66.5 per cent. in eight years. A deduction of 15 per cent. for the excess of this gross revenue over the revenue derived from the rate ordinance would not affect the proportionate increase for the years. It is thus shown that during the past eight years the company's gross revenues under the rates have made very satisfactory advances, with an actual reduction in cost of maintenance and repair account of over 30 per cent.; that the abnormal increase in the operating accounts have been due largely to the litigation and opposition to the city's water supply, and have acted to seriously retard the net revenue increase which the company might normally expect to receive. To my mind it is neither reasonable to expect nor equitable to require that the Supervisors shall anticipate expenses of this kind in fixing the rates. They have a right to rely on the normal expectation of increase in revenue and normal operating expenses. If the company's policies result in abnormal increases there is a good deal to be said in favor of charging this excess to the company's surplus, and not to the city's rate-payers in a proceeding brought to test the validity of the rates in question.

With respect to taxes, during the two years 1911-12 and 1912-13 the company recovered on suit \$46,417 in 1911-12 and \$41,854 for 1912-13, on the grounds of illegal assessments. (See Ex. 125, Books E. and F., page 1, and page 10,557-E, Record.) Two suits still pending involve practically the same questions, and recovery should be had in due time, which would then be credited back on the taxes for these two last fiscal years, and would add something in excess of \$40,000 to net revenue for each of these years.

XI. RATE OF RETURN.

I now come to the last of the three main divisions of the case—the question of the fair rate of return. In many respects this is the most important question which your Honor will have to decide, and in the determination of this question the point of view which your Honor takes in approaching it is probably going to be determinative of the findings which you will make.

The company contends that 7% is the minimum rate it should be allowed; the city contends that 5% is a non-confiscatory rate. The issues are not as clearly cut as the difference in percentage would indicate, as the parties have reached their results on a different theory. The company has sought to establish by the testimony of bankers and brokers that they would have to pay 7% for new money for new construction, and that therefore anything less than 7% would be confiscation of their existing investment. The city has sought to establish a market rate of interest, based on the net rate at which investors have been buying securities in the market during the period in litigation, with particular reference to the rates paid in the past by the company on its securities, and the rates at which it was able to borrow money on straight loans. Complainant has offered absolutely nothing to substantiate the opinion of their experts, except in that they borrowed money on some gold notes (\$1,000,000) in December, 1913; on which, by taking into account the large brokers' commissions and expenses and the cost of redemption of notes before maturity, the cost of the money was reckoned as being in the neighborhood of 7%. Of course, I don't think there is any justification at all for taking into account the cost of redeeming those notes as a part of the cost of the money. That was a cost which was incurred solely because the company wished to redeem the notes before maturity and substitute a new obligation for them.

MR. GREENE—Those notes matured.

MR. SEARLS—I understood there was a cost of redemption before maturity.

THE MASTER—What is meant by redemption?

MR. McCUTCHEN—Anticipating payment, I suppose.

THE MASTER—But Mr. Greene and Mr. Searls are not agreed on that—I mean they are not agreed as to the fact.

MR. SEARLS—The first gold note was made for two years; it was due December 1, 1915, but before that time, on September 1, 1915, the new gold notes for \$2,500,000 were issued. Consequently the original notes were redeemed to stop interest.

MR. GREENE—From what Mr. Sharon tells me, Mr. Searls, I think you are right about that; I didn't know about it.

MR. SEARLS—The second point I make with regard to the gold notes is that as compared with the total amount of money involved in complainant's investment the amount is very small. If the complainant is going to determine cost of money above its face rate by taking into account brokers' commissions and redemption costs and legal fees, and so forth, then they may obtain for a small amount of money a comparatively high rate. That does not necessarily mean that if they were going to borrow twenty million or thirty million to build a new plant that they would have to pay any such rate in the gross. The brokerage commissions would be much smaller on a large loan than would be the brokerage commissions on a small one. I do not think these note issues furnish any satisfactory criterion as to the cost of money for a permanent investment. I note your Honor's remark in the record at page 10,227 where you made a similar statement. I think that in order to pass the period of temporary depression the company should have borrowed the money from its bankers on short-term loans, which they could have gotten at a very low rate.

1. Expert Opinions.

So far as the testimony of Messrs. Lipman and Weeks is concerned, as to what they consider a fair rate of return, it seems to me that their opinion should be given just about the same weight as Mr. Gay's opinion as to the cost of cement. Gentlemen who are so intimately engaged as they are in obtaining the highest possible rate of return on money which is entrusted to them for investment and the maximum brokerage commission on the sale of corporate securities are very likely to have their opinions colored by the environment and influence to which they are constantly subjected.

A banker, in stating a fair rate of return, would naturally be influenced by the banker's idea of what was fair and not necessarily by the investor's idea. So far as their testimony is based on actual market conditions, of course their qualifications are conceded, but where they attempt to make it a matter of equitable consid-

eration I think it hardly should be considered as the testimony of unbiased witnesses.

Mr. Moffitt, also a banker, testified on the same subject for the city, but the same exception cannot be taken to his testimony because the same influences, if any, would operate in plaintiff's favor and not in defendants' favor. I called Mr. Moffitt in this case because I wanted to show your Honor that there are even bankers who disagree with the very optimistic opinion expressed by Mr. Lipman as to the return a corporation should get on its money. Mr. Moffitt's opinion was that 5% would in the long run be a fair rate of return upon the Spring Valley Company's investment. I think his opinion is entitled to some weight as establishing a non-confiscatory rate in any event.

It is true he says on cross-examination that he thinks that during the particular years in controversy that rate might be insufficient; he does not tell us what rate would be sufficient. I would say this, in passing, that it is exceptional to find a man as prominent as Mr. Moffitt is in the financial world who is willing to take the witness stand against a big corporation like the Spring Valley Company and express his opinion on a matter of this sort. If we should submit the case on the basis of the number of experts we could get to testify in this case as to their opinion on the fair rate of return I am afraid the city would lose out, because bankers would not be inclined to come up here and testify on this subject even if they believed the city's contentions.

THE MASTER—Didn't he predicate his 5% on a guarantee?

MR. SEARLS—He assumed that the decisions of the Federal courts would guarantee the company a return of at least that amount; that they might have to litigate for it, but he thought they would get that, and he thought that the investors as a general rule would be satisfied.

2. Cost of Money to Complainant.

I am much more impressed as to the historical facts on the rate of return paid by the company and other corporations in the market than upon purely expert opinion as to what is fair.

The testimony of all the witnesses on the question of fair rate of return, however, sufficiently establishes two or three points of general importance; one of these is that all public utility corporations do not pay anything like the same rates for new money; the second proposition is that large landholding corporations with an established business pay less for their money than either a corporation would without an established business or a corporation with an established business but owning relatively little realty of a character that is likely to appreciate in value. The result of this is that it is difficult, if not impossible, to fix a fair rate of return which would be applicable to all corporations.

The case has to be considered on its own history, and in connection with all the circumstances surrounding it. As a historical aid to your Honor in determining what rate should be applied in the case at bar, I have submitted two lines of evidence.

The first has to do with rates which were actually paid by the Spring Valley Water Company in the past. If you will refer to Mr. Dockweiler's Exhibit No. 185, you will find that he has compiled from the minutes of the Spring Valley Water Company a record showing the amounts of money which have been borrowed by the company during its entire history on straight loans, and the interest rates which have been paid on such loans.

Your Honor will find that never since 1893 has the company paid more than 6% for its money; that it has borrowed in its history some \$5,806,000 at that rate, that it has borrowed, \$7,249,329 at a 5% rate, most of these loans being in recent years. It has borrowed the following sums, (excluding gold notes) since 1907:

At 3% balances on land purchases	\$ 70,000.00
At 5% balances on land purchased	878,000.00
and from Bankers and Inv. Co.	845,000.00
At 5½% from banks and inv. companies.....	175,000.00
At 6% balances on land purchases	1,522,219.00
from banks and inv. Co.	635,000.00

This showing you will find in a similar table attached to Exhibit No. 185. This table also shows that since 1907 and during the years in controversy the company has borrowed no less than \$1,723,000 at 5%. These figures exclude the gold notes, the \$1,000,000 being issued in 1913, which ran less than two years, and the \$2,500,000 notes which were not issued during the period of this controversy.

It seems perfectly apparent that the company could have borrowed the \$1,000,000 covered by the gold notes issued during 1913 at a very much lower cost than it did, by simply resorting to the expedient of making shorter time loans from its banks. They probably could have gotten money at 5% if they had.

MR. McCUTCHEN—Would you have advised them, if you had been representing the company as its financial adviser, in the then condition of the money market to do that?

MR. SEARLS—I certainly would have done so.

The showing made in Exhibit No. 185 is that they did borrow \$75,000 in 1914, and \$170,000 at a 5% rate. They borrowed \$175,000 in 1914 at 5½%, and \$333,000 at 6%, so there seems to be no excuse for their paying 7% on money.

Looking back to the years 1907, 1908, and 1909, we find the company was paying but 3% on certain balances due on land bought down the Peninsula. This was when they bought the Fifield Ranch (Exhibit 185, p. 59).

If we go back to the years immediately preceding the fire we find considerable sums of money borrowed at 3%, 3½%, 4% and 4½% per annum, these sums aggregating over \$9,100,000.

Let us now see the rates which have been paid by the company on its bond obligations. The outstanding bond issue was for the most part sold during the years 1903, 1904, and 1905, and a few of the outstanding bonds were refunded in 1903 and 1904, but the large amount was in 1906, as may be seen from Mr. Metcalf's Exhibit No. 197 (1010-A). Practically all of this bond issue actually cost the company 4.65%, the nominal rate being 4%, and the term 20 years. Some \$14,000,000 of the bonds

refunded were designated 1st, 2nd and 3rd mortgage bond issues. There have also been issued and placed in the hands of trustees, as security on gold notes to which I referred, a considerable amount of bonds since 1909, of the same general issue, bearing 4% interest. There have been no sales of stock properly speaking for many years—referring to the original issues. The reorganization of the company took place in 1904, under which the authorized capitalization was increased from \$14,000,000 to \$28,000,000, and two shares of stock issued for one to each of the stockholders at that time. All the stock being outstanding, there was no new money derived. Your Honor will observe from Mr. Metcalf's exhibit that all of the stock had been sold prior to 1898. There is therefore very little to help us in showing what a new issue of stock would return to the company in the way of prices.

The dividends paid by the company during the years in controversy have been as follows:

Nothing during 1907; 2% in 1908; 4% in 1909; 4% in 1910; 4% in 1911; 4% in 1912; $4\frac{1}{4}\%$ in 1913; 5% in 1914, shown by Mr. Metcalf's Exhibit No. 170, and assuming par to be 50.

In other words, I have not taken into account the doubling of the company's stock in 1904 as affecting the rate of dividend.

As is shown by an exhibit of Mr. Boston's, being Exhibit No. 209, and his testimony (10,621) Spring Valley stock was selling on a basis of: 1908, 3.87%; 1909, 5.61%; in 1910, 4.18%; 1911, 3.6%; 1912, 3.17%; 1913, 3.77%; 1914, 4.53%, on a monthly average. This does not mean that investors would have bought new stock on such a basis, but the very large volume of the sales as shown by Exhibit No. 209 indicates that the stock was a popular one in the market at even those figures, and would lead to the inference that a new issue might be marketed at rates not substantially higher. In view of this showing made by Mr. Metcalf, Mr. Dockweiler and Mr. Boston as to the actual transactions on the company's securities in the past years, and the net cost to the company of its new money, I find no justification for an assumption that the com-

pany would have to pay more than 5% today for new money, taking stock and bonds together.

Mr. Metcalf has reduced the history of the stock and bond transactions to diagrammatic form on page 7 of his Exhibit No. 197, and reaches certain conclusions from his diagram as being that the actual rate paid for money raised upon bond issue has been 4.65 for 1906 to 1912, and 4.79 for 1913-14, and finally concludes that the cost of money to the corporation without profit appears to have been 6% in the year 1904 and thereafter. How he derives that conclusion in view of the fact that bonds have all cost less than 5%, and no stock has been issued since 1900, it is difficult to say. The short time loans certainly do not bear out the contention, and the two-year gold notes which were issued on a 5 and 5½% face rate respectively, are not a fair indication of what the company could have done in the way of tiding itself over a period of temporary depression by borrowing on short time notes from its bankers. As Mr. Moffitt says in his testimony, the company's credit has been excellent at all times.

3. Market Rates of Interest.

This brings me to the second line of investigation which I undertook with a view to determining whether the cost of money hitherto obtained by the company was due only to the high credit that it has, due to good management. So I had the market sales of a number of stocks and bonds for all the years in controversy tabulated with a view to determining the basis on which investors were willing to buy these stocks in the market. Mr. William A. Boston, who qualifies with sufficient experience in banking and stock market work to make the actual calculation, testified (10,620):

"I have only included stocks which paid a regular dividend, and which you might say are of a high grade. I have not included any stocks that have any great speculative element, like the sugar stocks, or certain industrial stocks, but have included the water and lighting and banks,

commercial and savings, some oil stocks, and some industrials, and telephone stock."

I think his selection was entirely a fair one, and the results which he has tabulated (page 4 of Exhibit No. 209) show the average selling basis of the stocks to be, including Spring Valley stock, 5.31%; excluding Spring Valley stock, 6.72%. On page 2 a similar tabulation made for bonds shows that the average basis on which bonds were sold on the market was 5.06% including Spring Valley bonds, and 5.07%, excluding Spring Valley bonds. On page 1 of the exhibit is shown the average net rate upon the basis of which all these listed stocks and bonds were bought during the years in controversy. The average is 5% including Spring Valley securities, and 5.18% excluding Spring Valley securities. Bonds of the City of San Francisco were included in this tabulation on an average selling basis of 4.60%. Some \$41,000,000 worth of such municipal bonds were sold during the years in controversy. Inasmuch that the area of the realty owned by the Spring Valley Company is something like twice the land area included in the City of San Francisco, and about half of it would be classed as residential property if it were not in water use, seems to justify the inclusion of these municipal bonds as having some bearing on the fair market rate of interest applicable under the circumstances.

MR. GREENE—Is that based on our properties that you claim are out of use?

MR. SEARLS—No, sir; it is based on all your properties. If your Honor will look over the list of securities which was selected by this witness, I feel sure that you will find that it is a representative one. I take it that there is no question but that Spring Valley securities may be classed with the best that the market affords. Yet Mr. Boston has not weighted his list with a preponderance of railway stocks or bonds or bank stocks or other gilt edge securities which would tend to make the basis too low. On the other hand, he has, of course, excluded stocks like sugar stocks, which have a widely speculative variation in market price and fluctuate very widely. There is a

preponderance of public utility stock which seems perfectly proper in view of the character of the corporation under investigation. In figuring bond sales, maturities were taken into account.

4. Mortgage Rates.

Supplementing this study of the market rate of interest on security sales, I endeavored to present some evidence as to the market rates which have been paid on large loans in this city secured by large real estate mortgages, believing that this data also would have some bearing on the fair rate of return to be allowed the Spring Valley Water Company, inasmuch as realty constitutes such a large part of its investment. These statistics were compiled by W. D. O'Brien, who has been a bond and loan broker, and is familiar with some of the large loans in the city, although most of them contained in the list set forth in Exhibit No. 210 were obtained from the city and county records of the recorder's office. These figures indicate that from $4\frac{1}{2}\%$ to $5\frac{1}{2}\%$ has been paid on most of these large loans, and insurance companies loan money at from 5% to $5\frac{1}{2}\%$. The Cogswell Polytechnic College made a large loan in 1910 at $4\frac{1}{2}\%$; New York Life Insurance Company made a million dollar loan in 1911 at 5% .

MR. McCUTCHEN—Did he state how much insurance they insisted on having before they made the loan?

MR. SEARLS—No; if you know it you can take the stand and testify to it—I don't know it.

The Hibernia Savings Bank made a number of large loans in 1912 at $5\frac{1}{2}\%$ and in 1914 the Metropolitan Life Insurance Company made a \$2,000,000 loan on the Phelan Building, period, 15 years at $5\frac{1}{2}\%$. 1914, your Honor will recall, was one of the years when testimony was given as to the existence of great financial stringency. There have been some suggestions in the record by Mr. Tourny that sometimes insurance companies force people to take out large insurance policies as a condition of making these loans. There is no evidence, however, that such was the case with the loans that are given here. That

is an affirmative fact which it should be easy for the plaintiff to prove if they wish to discredit any of these figures. They have not proved it. I submit that we are entitled to use them for what they show on their face as to the market interest rate conditions.

Mr. Tourny of the German Savings Bank has testified as to the rates charged for relatively small realty loans both in and outside of San Francisco, varying from 6 to 7%. I question whether these figures mean very much. They are for small amounts of money, and the rate of interest was consequently higher than could have been obtained for a desirable large loan. It is conceded by all the witnesses that the rates of interest paid by savings banks to their depositors during the years in controversy were 4% or less, and Mr. Lipman testifies that the rates paid on bankers' balances have been down as low as 2%, although of course the last rates have nothing in common with the fair rate of return on Spring Valley investments.

Taking all these circumstances into consideration I submit that your Honor is justified in finding that 5% represents the fair cost of money to the Spring Valley Water Company, and that something between 5 and 5½% represents the market rate of interest paid upon the most desirable securities sold on the San Francisco market during the years in controversy; that large amounts of money have been loaned at smaller rates than 5% on long time mortgages; that under these considerations your Honor cannot find that if the water rates have yielded the Company 5% during the years in controversy, that they are confiscatory. While I derive this conclusion from a study of statistical data and the competent expert opinion such as that given by Mr. Moffitt, I do not rest my conclusions upon these grounds alone.

5. Realty Appreciation Should Be Considered.

In the discussion of realty values which we have included in the reproduction value and the rating base in our case, I showed your Honor that the city has included the realty in use at something over two times its original cost, and that the

company has included all of the realty at something like three times its original cost. I suggested then, and I repeat my suggestion now, as a matter of equity and protection to the public of the future against the exorbitant rates which would have to be charged some day, if the rule of allowing return on full market value of realty continues unmodified, this unearned increment should be taken into account in determining the fair rate of return. It is something for which the public receives no good quid pro quo. It is a gratuity which accrued to the company's benefit solely by reason of the increase of population and development of the market over and above the benefits which they derive from the increase of their business, and it has to do directly with the attractiveness of their investment to investors, and logically affects the rate of interest which investors will be willing to take. If Spring Valley stocks have sold on a 3 and 4% basis, as Mr. Boston testifies, during the years in controversy, it is of course partly because of the appreciation in realty value with which every investor is familiar. (See Mr. Moffitt's testimony, page 11,147 of the record). Now, if investors take this appreciation into account in figuring the basis on which they are willing to buy the stock, why should not the court take it into account in figuring the rate of return which it is fair to allow on the value of these properties. I have yet to see a decision of the Supreme Court covering this point, which I believe is worthy of serious judicial consideration—although I quoted to your Honor this morning Mr. Whitten's views on that subject—

MR. GREENE—You might also have quoted the opinion of the New York Court of Appeals, Mr. Searls, where they expressly deny the suggestion you have just made.

MR. SEARLS—In the Kings County case?

MR. GREENE—Yes.

MR. SEARLS—I think there the Commission tried to include the entire appreciation as net return.

MR. GREENE—I thought that was your notion here.

MR. SEARLS—No. I am simply saying that your appre-

ciation should be taken into account in determining what the rate of return is, not the actual net return. I don't want to charge up the appreciation in value as a part of your net earnings.

And finally, I reiterate to your Honor the contention that I advanced at the beginning of this argument, a contention which has everything to do with the jurisdiction of the federal court under the federal constitution that is summed up in the expression that the rate of return yielded by these ordinance rates must be so low as to be confiscatory; confiscatory—that is, to take without compensation. As Justice Brewer said in one of his earliest decisions written on the subject of rate-making, if we take the use of the property without compensation, we are in effect confiscating that property, but when we take the use of that property and allow as compensation therefor rates which yield as much as 5% rate of return after allowing for all operating expenses, taxes and a fair depreciation allowance, the result seems to be so far from being confiscatory, as to justify the finding for the defendants. It is of no concern your Honor, sitting under the Fourteenth Amendment of the Federal Constitution what the future needs of the company are or what rates should govern in the future. That is a matter which must be determined in the first instance by the Railroad Commission, and you can only pass on that after they have acted, not before. And if you cannot establish a rate for them in the future, what justification is there for your considering evidence of the type presented by Mr. Metcalf and Mr. Hazen, having to do with the needs of the company in the future. These matters will be considered in due time by rate-making bodies. Presumptively justice will be done to the company and the dictates of public policy subserved. A rate-fixing body has other questions than judicial questions to consider in reaching the rate of return. It has to determine matters of policy affecting the future extension of public utility works. Those questions may justify an ultimate enlargement of the rate beyond the figure I have suggested. I do not know, nor can any of us

pass on that question here. I only consider the lack of justification for your Honor's considering the partial evidence as to the company's intentions, both as a matter of jurisdictional limitation and of public expediency.

6. Citations.

There are a number of cases, decided in recent years, in which a fair rate of return has been considered by the courts. I shall refer very briefly to those in passing.

In the Cedar Rapids case, 118 Iowa, 234, 91 N. W., 1081, 1091, the Iowa Supreme Court, in a case involving the constitutionality of an ordinance regulating water rates, held that 4.4% to 5½% return was not confiscatory, saying:

"The net earnings upon this showing, if not large, are substantial. The court cannot undertake to guarantee the company any fixed or certain return upon its investment. The exercise of such a power would work an utter destruction of the legislative right to regulate rates of water companies and other corporations operating works of public utility. We think the decisions have already gone to the verge of safety in nullifying legislative acts of this character; and to go farther and say that the courts will not only preserve property from confiscation and destruction by legislative power, but will also assure to its owners a definite and fixed rate of profit upon their investment, would be an act of judicial usurpation."

In all of the Spring Valley water cases 5% has been fixed as the limit for the purpose of determining confiscatory rates.

In *Spring Valley Water Works vs. San Francisco*, 124 Federal, 574, Judge Morrow said, at page 599:

"In view, therefore, of all the circumstances, the court is of the opinion that the complainant is entitled to receive at least 5 per cent. as the net compensation it is entitled to receive on the value of its property."

Judge Gilbert, in the preliminary injunction granted in the Contra Costa case against the City of Oakland, 165 Fed., 517,

532, gives 5% as a minimum rate of return to the water company, following Judge Morrow's precedent.

The New Jersey Court of Appeals, in *Long Branch Commission vs. Tintern Manor Water Company*, 70 New Jersey Equity, 71, 63 Atl., 474, stated as follows:

"The next question is, what is a fair income for the defendant to derive on that sum?

"I have intimated that the defendant ought not to expect, at the start, a compensatory income such as that stated by Judge Williams in the Supreme Court of Pennsylvania, and by the Supreme Court of Maine, above cited, but I do think they ought to get at the start a moderate rate of interest, say five per cent. on their investment, after paying all expenses of operation and maintenance and a moderate allowance for depreciation in value."

Judge Farrington, in the preliminary injunction in the 1908 case, which is one of the cases at bar, also held that an income of 5% net after all taxes, operating expenses and other legitimate and proper charges are deducted from the gross income, is neither unreasonable nor confiscatory. He subsequently reiterated these views in the final decision of the 1903 case, reported in 192 Federal.

In the Knoxville case, 212 U. S., 1, the Supreme Court of the United States spoke as follows:

"Upon any aspect of the evidence the company is certain to obtain a substantial net revenue under the operation of the ordinance. The net income, in any event, would be substantially 6 per cent., or 4 per cent. after an allowance of 2 per cent for depreciation. See *Stanislaus County v. San Joaquin County*, 192 U. S., 201. We cannot know clearly that the revenue would not much exceed that return. We do not feel called upon to determine whether a demonstrated reduction of income to that point would or would not amount to confiscation."

While, of course, the court did not flatly decide that 4% was not confiscatory there, it certainly indicated that the rates might yield that amount and still not be enjoined; other-

wise, they would have issued an injunction in the case. Of course, they are there dealing with rates applying to the future.

In *Wilcox vs. Consolidated Gas Company*, 212 U. S., 19, the Supreme Court held that 6% was a fair return, saying at page 48:

"There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality; among other things, the amount of risk in the business is a most important factor as well as the locality where the business is conducted, and the rate expected and usually realized there upon investments of a somewhat similar nature with regard to the risk attending them * * * Taking these facts into consideration, we concur with the court below on this question, and think complainant is entitled to 6 per cent on the fair value of its property devoted to the public use."

In the Cedar Rapids Case, 91 N. W., 1081, decided in 1902, the court said (p. 1091):

"On this basis the net earnings are 5½ per cent. on a valuation of \$400,000, or 4 2-5 per cent. on a valuation of \$500,000, or 6½ per cent. on the total amount of capital stock and bonds. Stated otherwise, this will enable the company to pay its interest charge of \$7,500, making a dividend of 5 per cent. on its capital stock (including stock issued as dividends), and leave a margin of over \$3,000 for contingencies. This estimate of earnings may be very materially reduced, or the estimate of the value of the plant be very materially increased, before the court will be justified in saying that the plaintiff's property is being exposed to destruction or confiscation by an unprofitable schedule of rates. * * * The net earnings upon this showing, if not large, are substantial."

MR. GREENE—That was on a preliminary showing.

MR. SEARLS—Even so, Mr. Greene, the court very strongly intimates there that such a rate is not confiscatory.

In the *Lincoln Gas & Electric Light Company vs. City of Lincoln*, 223 U. S., 349, at page 360, the Court said:

"But it is urged that even upon the valuation fixed by the court the estimated future net income will be little over 5 per cent., and, in consideration of the character of the property and the high average interest rate prevailing in Nebraska, this is not a reasonable or fair return and demonstrates the confiscatory character of the ordinance. But if the \$8,000 first deducted from the receipts and laid aside as a permanent fund to meet future depreciation be taken into account, the estimated future net income from the rate in force will exceed six per cent."

That is another case where the Supreme Court seems to have taken the depreciation account into consideration in determining net rate of return:

"Nor did the Circuit Court hold that a net profit of five and two-tenths per cent. would be a fair and reasonable return upon the value of the property employed. What the court found was, in substance, that at least an income of that amount was certain, aside from the amount reserved for a permanent preservation fund."

The Supreme Court of this state, in the *Contra Costa* case, 113 Pacific, 668, said, at page 670:

"As to this return (4.682 per cent.), we said that while we were not to be understood as intimating that such a return would be considered by us a full and fair return under all the circumstances, were we engaged in the exercise of the function of fixing rates, we did not believe that upon the record before us a court would be warranted in holding it to be beyond the power of a legislative body to fix, in other words, that upon the record before us we could not hold that the rates fixed were confiscatory."

In the decision in the *Des Moines Gas Case*, 199 Fed., 204, at page 206, it was said:

"The net earnings, according to the duration of the franchise, the earning power of money in that vicinity,

and the hazards, moral, and physical, and otherwise, should vary from 4 to 8 per cent., besides that set aside for depreciation and maintenance. But there is and can be no rigid or inflexible rule as to the per cent. to be thus earned."

I submit that the foregoing authorities are sufficient justification for the allowance of a rate not exceeding 5 per cent. in this controversy.

XII. CONCLUSION.

The time has come now to close this argument and place the case for the defendants in your Honor's hands. It would serve little purpose to make a detailed summation of the case at this point. You will find such a summation set forth in the closing exhibits of Mr. Dillman and Mr. Ellis (Exhibits 212, 213 and 214). With the exception of the year 1907, it is our conclusion that the rates in question yield a net return of at least 6% on the fair value of all the plaintiff's properties, used and useful in the supply of water to the city and county of San Francisco and its inhabitants during the years in controversy.

THE MASTER—By the way, Mr. Searls, Mr. Ellis did not give his idea as to what the proper rating base should be, did he?

MR. SEARLS—No, your Honor. His testimony varied Mr. Dillman's basis by the inclusion of the evidence of these other witnesses that such and such a result would be reached.

THE MASTER—In other words, he simply made a computation?

MR. SEARLS—Yes. I did not wish to quote that as being his opinion of a fair rating base as a whole. In regard to the testimony of Mr. Ellis, I might say that he had not made a complete appraisal of the plant, and had not had such familiarity with it as would enable him to make such a decision so as to entitle it to be of weight. That is the reason I did not ask him to testify independently.

For the year 1907-08 less than 5% is allowed. The rate for

that year is undoubtedly confiscatory if judged by ordinary judicial precedent or ordinary line of reasoning. I make only this suggestion to your Honor in considering the sufficiency of the rates for this year.

In the year immediately following the great disaster of 1906, thousands of people in this city were homeless, and in some cases had lost all that they had. A 3% net return for the year would have seemed a godsend to many thousand San Franciscans. Many of them would have been more than content with only a 3% deficit. Would it have been fair and equitable during those trying times to have increased the water rates so as to yield the complainant company a rate which had not been judicially declared to be confiscatory, at the expense of the pocket books of these thousands of water consumers, laboring under the difficulties which then existed? Evidently the board of supervisors felt that they would not be justified in making such an advance in rates. And while I admit that upon our own showing in this case your Honor will be justified as a matter of law in declaring this 1907-08 ordinance unconstitutional, I merely suggest in passing that perhaps the circumstances I have mentioned are worthy of the consideration of a court of equity. I would not make that suggestion for any other year in controversy. The defendants' showing is that for these years the rates have yielded at least 6% return, and in the last year or two, 7%. The defendants' showing is that 5% would have been a non-confiscatory rate, and that using 5% as a rate of return, the rates in question would have yielded that rate upon a valuation very much in excess of the sums which are included in the different rating bases. There is thus a margin of from 1% to 2% on the net return in our favor over and above the showing as to the minimum non-confiscatory rate which we have made. This showing, we submit, has included more than a reasonable allowance for errors, omissions, or inadequacy in capital valuation, all the operation expenses and taxes which are fairly chargeable to the plaintiff's water business, and a depreciation reserve equal to that which they

have themselves been carrying on their books. Upon this showing I am content to rest.

As I look back over the many years of controversy between the company and the city, and review in my mind the causes which have led to the situation in which we now find ourselves, these considerations appear to me most forcible—that the percentage of real estate owned by the Spring Valley Water Company which has been in the process of accumulation under the policy established in the early years of the company, is too large for its needs, or for the needs of the city of San Francisco, present and reasonably near. The company has seen fit to invest in hundreds of acres of valuable city land at Merced and valuable agricultural lands at Pleasanton, money which had far better been spent in the development of new structures and new supply of water to meet the needs of San Francisco. Mr. Hazen and Mr. O'Shaughnessy differ only as to the degree of inadequacy of the company's system to meet the present requirements. If the company had within these years in controversy sold off the land at Lake Merced, which never was and never will be needed for water supply purposes, and its agricultural holdings at Pleasanton, the money derived from such sale would under Mr. Hazen's estimate, be sufficient to build the much needed Calaveras conduit, and extend the development of the system. If this policy had been followed, there is no question to my mind but that the additional consumers and the additional revenue derived from this investment would have more than made up the inadequacy which the company claims, and we would not be here today. As it was, unfortunately, matters came to an *impasse* between the representatives of the company and the city authorities, the former refusing to spend additional money until the rates were increased, the latter refusing to increase the rates until an adequate supply should be furnished inhabitants of the city whom they represented.

It is for your Honor to determine the relative justice of the position assumed—did the supervisors err in refusing to increase the rates until the company had performed its full

duties to this community and should then show that the rates were inadequate, or did the company err in assuming that they could go on imposing upon this community the duty of paying a rate of return which they considered necessary upon the multiplied value of their real estate, used and non-used, and although the rates were already twice as high as those in any other large city in the country, as a *sine qua non* to making further investments.

There is no question in my mind as to where the equity lies. There is no question in my mind but that the city authorities should be justified in their stand. There is no question in my mind but that your Honor's decision that these rates are constitutional will result in the adoption of a new policy by the company, having for its attainment the development of all its sources, in consonance with the city's needs, and the disposal of the huge surplusage of unneeded capital assets which have accumulated through these years.

Public confidence in the company will be restored, and when the time comes to add to the yield of its sources our magnificent mountain supply, the company will sell its properties to the city at their full developed value, and justice and equity to all will have been done.

The defendants rest.

MR. GREENE—Mr. Searls, there is one question I would like to ask you, a question that I put to you at the time I was discussing rate of return on my opening argument, and you did not discuss it under that subject during your argument, and it seems to me fair to remind you of it, namely, the question of risk.

MR. SEARLS—I have only this to say about the risk: I think from the attitude that public utility companies have taken lately, that the San Francisco earthquake was a boon rather than a disaster. If the story of that earthquake will enable them to get from rate-fixing bodies the increases in rates they think they should get, they will have wiped off the original losses and multiply them in the form of profits

many times in the future. It seems to me that so far as physical risks go, it is obvious that the Spring Valley Water Company does not labor under any conditions which are comparable with those which affect a public utility having all of its capital tied up in structures, for instance, a gas company, or an electric company, or a telephone company. I think your Honor's decision as to a net rate of return, on the preliminary injunction, in the gas case, was amply justified.

So far as the risk of competition is concerned, the company does not claim there is any danger of competition from other companies. The claim of competition with the city has not been justified by any actual assumption; all the witnesses for the city—Mr. O'Shaughnessy and Mr. Wadsworth—admit that any development for a municipal supply would involve the acquisition of a good part of the company's plant, particularly the city distributing system and peninsular storage. In view of those facts, I am totally at a loss to see where any justification lies for the assumption of a high risk on the part of a water company situated and located as the Spring Valley Water Company is—furnishing the necessity of life to the largest city in the western part of the country.

